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Progress of Veterinary Science.

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Winnipeg, Man.

Agriculture and veterinary science are mutually dependent upon each other. Without the protection afforded by a knowledge of contagious diseases of animals and the means to be adopted for their prevention, the pursuit of husbandry, especially the branches connected with stock-raising, would be uncertain and subject to frequent and severe losses. A successful agriculture, in return, renders the practice of veterinary art profitable and stimulates its followers to exert themselves in the study of the diseases of animals and their best mode of treatment. Progress in veterinary science then is directly beneficial to the farming community, and this is a sufficient reason for giving a brief account of some of the more recent discoveries in connection with this branch of the healing art.

As the century is drawing to a close, it is interesting to look back to its earlier years and view the condition of veterinary science in relation to agriculture. As a profession the veterinary surgeons of those days were practically unknown outside of the large centres of population. The veterinary college in Camden Town, England, had only been in existence for a few years, and the graduates were few and far between. In agricultural districts the treatment of diseased animals was practically in the hands of men, known as farriers, who were also the blacksmiths and horse-shoers of the neighborhood. These men were totally ignorant of the nature of disease, and had many quaint and fantastic notions with regard to its cause, notions still kept alive in such terms as "hollow horn," and "wolf in the tail," expressions heard occasionally

even at the present day. Their knowledge of treatment was almost as crude as their ideas of the nature of disease, but by practice and experience they knew the effects of certain drugs upon animals, and were not afraid to dose their patients heroically. It must be said in their favor, however, that the veterinary surgeons of those days looked upon bleeding, purging and blistering as the most trusty weapons in fighting disease, so it is not surprising that their unprofessional brethren should have imitated their methods. These conditions prevailed in Great Britain until the middle of the century, the unqualified men or farriers greatly outnumbering the college graduates.

The disastrous outbreak of cattle plague in England in '65 was the means of awakening the public to the importance of veterinary science. The rapid spread of the disease, its grave mortality and the losses incurred in the stamping out process, brought forcibly home to the farmers the importance of keeping such deadly diseases

Canada has been fortunate in having a Department of Agriculture fully alive to the importance of protecting the live stock of the country from contagious diseases, and it is owing to the statesmanship of the late Honorable Alex. MacKenzie, then Premier of Canada, that our cattle have been protected from pleuro-pneumonia and foot and mouth disease. Owing to his foresight and the advice of Prof. McEachran, the cattle quarantine station was established at Point Levis in 1876, and soon gave evidence of its usefulness in preventing the entrance to the country of cases of both these diseases. Since then the quarantine system has been extended to Halifax, St. John, and many other ports in Canada to which cattle are shipped from foreign countries.

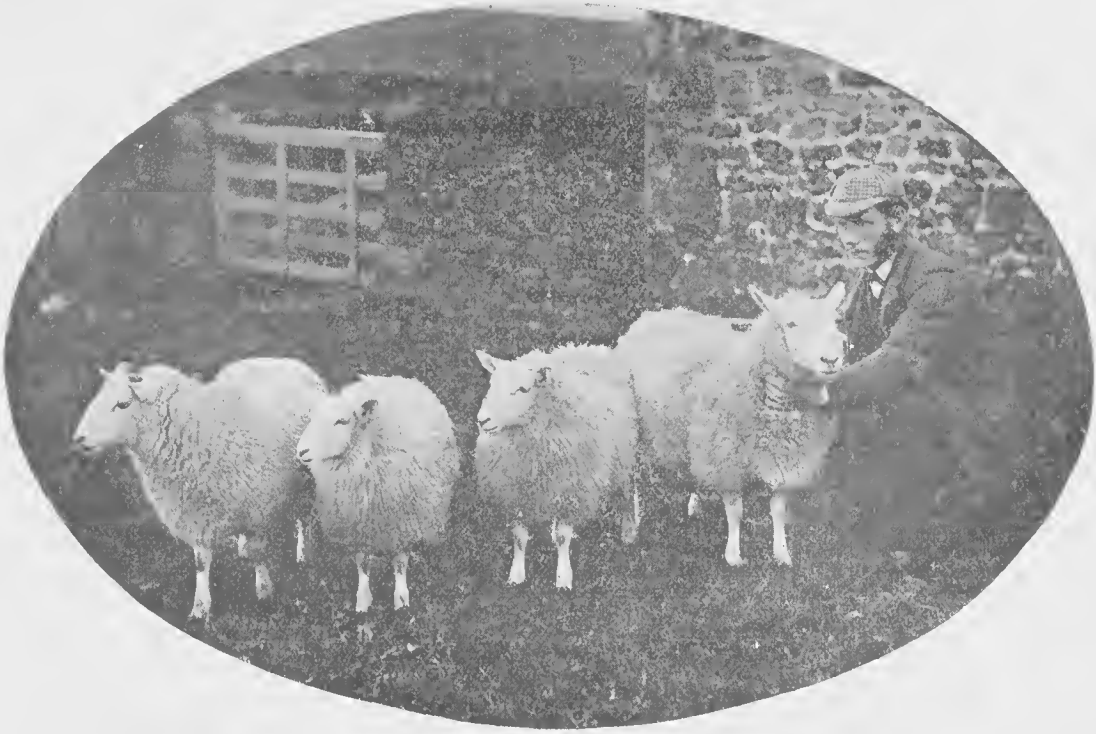
Some idea of the value to Canada of this veterinary service may be obtained by studying the effect of the supineness of the Australian authorities in regard to these matters. Through the carelessness or in-

difference of their legislators, pleuro-pneumonia was allowed entrance to that continent, and in 13 years the losses amounted to about 30 or 40 per cent. of the cattle or about 1,404,097 head valued at \$42,500,000.

Even this experience did not rouse them to a sense of the necessity of veterinary inspection, and as a result their cattle are now being destroyed by thousands from the ravages of what they call the "tick dis-

case." This is a disease well-known in America as Texas fever, and might easily have been kept out of Australia by suitable precautions. South Africa is now being scourged by cattle plague, and the assistance of the celebrated Dr. Robert Koch was invoked to devise some means of checking its ravages.

These instances should be sufficient to impress upon the farmer the value of veterinary science as an aid to agriculture. Now that modern systems of transportation make it possible to convey live animals several thousand miles to find a market there are many more sources of contagion to guard against than there were in the early part of the century. There must be greater care exercised than ever and every relaxation of the quarantine laws regarded with suspicion. As Manitobans, we may be thankful that hog cholera, which exists at present in the neighboring State of Minnesota, has not been allowed to gain access



Cheviot Ewes and their Lambs.

at a distance. Acting upon the advice of Prof. Gamgee and other distinguished veterinary surgeons, the government placed restrictions upon the importation of live cattle, hides, etc., and when, a few years later, a ship brought infected cattle to a port of England, the disease was promptly recognized, the cattle slaughtered, and the country protected from a repetition of the disaster of '65. This was a practical demonstration of the value to the country of veterinary science for the prevention of disease and the governments of all civilized countries began to put in force laws for the prevention of contagious diseases of animals.

Through these repressive measures the ravages of such diseases as cattle plague, pleuro-pneumonia, and foot and mouth disease have been greatly diminished, and in some countries entirely abolished, glanders is well under control and tuberculosis will gradually become less frequent.

to this province, a result which is due not so much to our quarantine laws as to the rigorous repressive measures enforced in the infected localities. Hog cholera is said to cause an annual loss of \$20,000,000 in the United States, and we don't want any of it.

Nothing in the progress of veterinary science during recent years reaches the importance of the discovery of bacteria as the cause of disease. This was originally a veterinary contribution to science, for the first demonstration that bacteria were the actual cause of disease was obtained in a cattle disease called anthrax. The germ theory of disease had been advocated many years previous to the present century. It claimed that contagious diseases were caused by living germs which multiplied in the bodies of the creatures they attacked and thus produced the disease in question. As a working theory to explain the facts it was accepted to a certain extent by the medical profession, but no one had been able to give an actual proof that the theory was correct until Dr. Robert Koch did so in the disease known as anthrax. Koch's later discoveries of the germs of tuberculosis and cholera have rather overshadowed his earlier discovery, but in reality it was the first which was the most important and made the later ones possible.

Anthrax is one of the oldest diseases known and is supposed to have been the sixth plague of Egypt. It is described by Homer and Ovid, and is unquestionably of the greatest antiquity, and yet until Koch turned the search-light of his genius upon it, hardly anything was known about it that had not been known for centuries, and its cause was still shrouded in the deepest mystery. Koch raised the curtain and showed that in the blood of anthrax animals a peculiar rod-like organism was found, to which the name bacillus was given. He showed that these rods, or bacilli, multiplied themselves in the blood and produced spores or microscopic seeds. He proved that these organisms would grow and multiply under certain conditions outside of the animal body and that the descendants of these artificially cultivated germs would produce the disease when inoculated in healthy animals. And finally he showed that these artificially diseased animals contained the same bacilli as he had originally cultivated.

This discovery was the foundation stone of the modern science of bacteriology, and one by one the germs of glanders, of tuberculosis, of tetanus or lock-jaw, and of a host of other diseases were discovered, classified and named. Then followed investigations resulting in the discovery of methods of early detection of contagious diseases. The products of artificial cultures of bacilli produced tuberculin and mallein for the discovery of latent cases of tuberculosis and glanders. Thus a new weapon was forged for the use of the veterinarian in fighting these two insidious diseases.

Pasteur's contributions to veterinary science are no less important than those of Koch. He discovered the method of inoculating cattle for the prevention of anthrax with an attenuated virus, producing in effect a mild form of the disease, from which the animals recover, and are thus protected from the acute disease. To the bovine race of France this discovery was on a par with vaccination for human beings. Anthrax had formerly caused the loss of thousands of cattle and sheep, and the practice of Pasteur's inoculation was the means of saving millions of francs annually. Anthrax is a rare disease in Canada, but "black leg" is comparatively common and a protective vaccine is manufactured for that disease which is wonderfully successful in preventing it. When black leg makes its appearance in a herd, they are promptly inoculated and practically all are saved, except the animals in which it first

appeared. Pasteur's other discovery in the treatment of rabies or hydrophobia is so well-known it need not be referred to here.

Bacteriology also gave the scientific proof of what Lord Lister, with the instinct of genius, had predicted, that germs or bacteria were the cause of pus formation in wounds, and if they could be excluded from a wound it would heal without the formation of pus. Thus began the revolution in surgical methods which have reached such perfection that operations are now of everyday occurrence which formerly were thought impossible.

Modern surgical methods in veterinary practice have proved of inestimable value. Wounds which formerly would have required weeks to heal can, by antiseptic methods, be healed in little more than as many days. Operations can be performed with certainty of success which under old methods were doomed to failure, and in this way many a horse can be saved to a life of usefulness instead of going to an untimely grave.

In the treatment of disease the progress of veterinary science is hardly less marked. New drugs and appliances render the surgeon assistance undreamed of even twenty years ago. Diseases formerly considered incurable are now treated with a large measure of success. "Lumpy jaw," or actinomycosis, for instance, was formerly considered a cancer and incurable. Nowadays it is readily curable in the majority of cases. "Roaring," a disease of the vocal cords, was not long ago looked upon as hopelessly incurable. In recent years an operation has been devised which removes the diseased organs from the larynx, and by enabling the horse to breathe freely, cures the "roaring." These few instances might be multiplied many times, but they may be taken as examples of what is being accomplished.

The most recent conquest in the realm of veterinary science is the discovery of the organism which produces Texas fever in cattle, the disease which now is ravaging the herds of Australia. For many years Texas fever baffled all attempts to clear up the mystery of its cause. The Bureau of Animal Industry of the United States had trained observers working upon it for years, and it was not until 1897 that the puzzle was unravelled. Texas fever has an interesting feature which singles it out from all other diseases. The cattle of Texas and the gulf states do not suffer from it, but if they are driven north and are allowed to mingle with the cattle of the northern states, these latter cattle become affected with Texas fever and die in large numbers. Not only this, but the mere fact of Texas cattle pasturing on land afterwards occupied by northern cattle is sufficient to infect them and produce the disease without any actual contact between northern and southern cattle.

Lately it has been discovered that the ticks, small parasitic insects, living upon the skins of southern cattle were the means of conveying the disease from one to another.

The southern races of cattle are naturally immune to the disease or have it in a mild form, but the infection from these cattle produces an acute form of the disease in the susceptible cattle of the north. This fact is similar to the conditions seen in connection with yellow fever of human beings, a fever which does not affect the negro race but is very virulent among the white.

Another curious fact is that the ticks may be reared artificially apart from cattle, will lay their eggs and when the ticks hatched from these eggs are placed on northern cattle they produce the disease. It is found that if the ticks are removed from southern cattle, these cattle can then be safely allowed to mix with northern cattle and no disease is communicated from one to another.

These discoveries have been followed by experiments in trying to find a practical way of destroying the ticks without injuring the cattle, and it is now announced that by dipping the cattle in a bath of light mineral oil, in which sulphur is dissolved, the ticks can be entirely destroyed. The value of this discovery to the cattle-raisers of the Southern States is immense, for they have been prohibited from shipping live cattle to the Northern States except during two winter months, when frost puts a stop to the operations of the ticks. They will now after dipping the cattle be able to ship at any time of the year. Northern States will obtain stockers for fattening at the proper season and the profits of cattle-men will be greatly increased.

Other instances might be cited to show the progress of veterinary science. Rages could be devoted to the improved methods of dealing with such diseases as tuberculosis and glanders, the value of veterinary work in connection with inspection of dairies and slaughter houses might be enlarged upon, but enough has been said to prove that the science is progressing rapidly and the benefits it has already conferred upon agriculture are a promise of what it can do in the future.

THE HORSE.

The Feeding of Colts.

By J. B. K.

The large amount of nondescript colts that one sees in this country is to be regretted. What is the cause of it? Generally the colt makes good growth until weaning time, if the flow of milk is sufficient and the mare not worked too hard. It is then tied up, fed on hay and oats, which perhaps it had seldom seen before, or it is let loose to run with the teams while cutting and stacking, feeding on the grain which they happen to be working at. But the owner will tell you that does not hurt it, meaning that it does not make it sick. In both cases it is ruin to the digestive powers of the colt, the change in feed being so abrupt. This gives it a set-back in growth from which it can never recover.

During the succeeding winter it is fed just whatever the owner has, generally the same as he feeds his grown horses doing nothing, and sometimes not even that. No effort is made to feed a balanced ration. The result is a homely looking animal, a disgrace to the feeder. While I do not maintain that horses can be reared here equal to the high-bred British product, or even that of Eastern Canada, owing to climatic conditions, yet we can, with proper breeding and feeding, raise pretty fair horses. Lots of colts can be seen which are well-bred, but for want of proper feeding are but second rate animals. Good breeding will not take the place of feeding. It took feed to make the breed and it will take feed to maintain it.

The colt's food should contain a larger percentage of protein (flesh formers) than that fed to mature horses. Their earliest natural food, milk, is about one-third protein, to two-thirds carbo-hydrates. Of the foods available on most farms in Manitoba, oats, bran and flaxseed come nearest to milk in relative proportions of muscle forming to heat and fat producing elements, and also in phosphate of lime and other mineral constituents required by the growing animal. A combination by bulk of oat chop, bran and ground flaxseed in the following proportions, respectively, 60, 30 and 10, will be found a good combination for growing animals. Chemically it contains a large proportion of

nitrogenous substances which go to build up muscle, tendons, etc., and it is particularly rich in ash of which the bones are built. Physically it is open and porous, rendering it easily digested.

Three quarts three times a day of this mixture along with hay is sufficient for a colt the first winter. We have fed the above ration, together with a few carrots daily as long as they lasted, with good success. This will be found much cheaper than oats alone, besides being a more balanced ration. The above is intended to

a good many poor colts. If such laxative foods as bran, flaxseed and carrots are fed along with the oats and hay in winter, and a little oats (we prefer feeding them whole when the animal is on the grass) and hay, at night, in summer, there will be no complaint about the poor growth in summer. But let the change between winter and summer feed be gradual, as it takes time for the digestive organs to adapt themselves to the new conditions. The idea should be to have a steady growth right along. I believe it

them have access to salt, they will thrive better. Keep hoofs trimmed. Neglect of this is the cause of spavins, splints, etc., by the hoof growing longer or breaking off on one side, thus throwing the weight unevenly on the joints.

That the standard of colts in Manitoba can be greatly raised, by proper attention to the feeding and general management, there is not the least doubt. One winter I saw a person feeding a young colt as much as one gallon of oats three times a day, when oats were plentiful.



Farm Buildings of John Atkinson, Glenboro, Man.

be fed with hay. If straw is fed increase the flaxseed and feed a little more of the mixture. If sheaf oats are fed give the bran and flaxseed, without the oat chop. In years when there is a large amount of damaged wheat, it may take the place of oats, weight for weight.

Wheat differs more physically than chemically from oats, though it contains less ash; therefore more bran should be used than when oats are fed, to keep it more open and to increase the ash constituents, of which bran is unusually rich. Boiled barley is altogether an unnatural food for colts, in fact, I doubt the advisa-

is possible by heavy feeding and insufficient exercise to force growth so that they mature at an early age. However well this may be for other animals, such early maturity of the horse is, I believe, incompatible with lasting qualities of any kind.

The colt will make a gain of two pounds a day for the first four or five months if the mare gives a liberal supply of milk; if not it should be supplemented with cows' milk. Scanty nourishment at this period is often fatal to full development afterward. As I mentioned before, the colt at weaning time is generally put upon

This is the kind of person who will winter the animal entirely on straw the next season. Economy in feeding colts, as in all other animals, consists in feeding a ration suitable to its requirements. In conclusion, let me say that farmers should study more the analysis of stock foods, and the terms used in connection therewith, if they want to take full advantage of the feeding experiments carried on at the experimental farms of this and other countries.

Are you death on the scrub bull?



On the Farm of A. & J. Morrison, Carman, Man.

bility of feeding it to any horses, with perhaps the exception of aged ones. They are more liable to colds and diseases of the digestive organs; at least we have found it so.

I have heard it said that colts well fed during the winter made poor growth in summer. This is somewhat the case when a well wintered animal is turned out to grass, and all grain and hay withheld from it; and it is more apparent on such an animal than on the half-starved one. A lack of laxative food during winter, and an excess during summer, is the cause of

dry feed, of a constipating character compared with the milk, which contains considerable oil. To remedy this, half a pint of ground flaxseed should be fed daily, after weaning, along with the oats, which it has been taught to eat before. From this diet gradually work it on to the ration before mentioned. Anything that will stop or hinder growth should be avoided. Growth once lost can never be regained. Distemper is more to be feared for this reason, than for its mortality. Therefore contact with other colts affected is to be avoided, and cases isolated. Let

A novel idea in salting cattle comes from a Kentucky breeder. He says, always put the salt on the backs of the cattle and not on the ground. By so doing the salt works through the hair and forces the cattle to lick themselves, which keeps the hair nice and glossy. Should there be any vermin on their backs the salt destroys them on short notice. He claims that he has followed this plan of salting for fifteen years, and always has nice healthy cattle. He says when he starts into the pasture with a sack of salt every cow begins licking her back.

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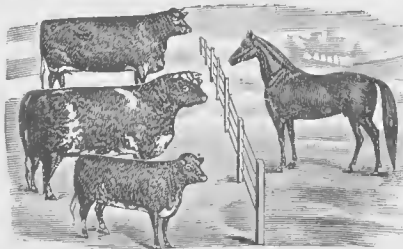
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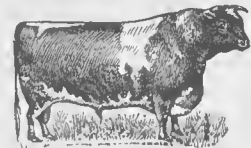
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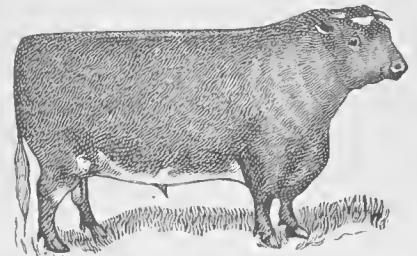
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The care and general management of live stock is a subject of importance to every farmer and stockman, whether it be the rearing of horses, cattle, sheep or pigs. Each and all of these require a certain amount of care to make the raising of them a profitable business, for every common-sense farmer knows that live stock, no matter what description, will not give the same returns when left pretty much to their own resources, as when carefully tended by the hand of man.

Take in the first place the breeding and management of the horse, a subject of vital importance, especially to the farmers of Western Canada, where horses are generally in demand, and will be more so in the future, and where the keeping of a good class of horses, and judicious management of the same, is essential to prosperous farming. The mare should drop her foal about the latter part of May or early in June, by that time there will be a bite of grass, which to her at this period is worth more than all the artificial foods we can give her. The colt will also soon get to picking the young blades of grass, thereby getting that succulent food which to the colt in his early days is so necessary. Do not let the mare and colt be exposed to the inclement weather, but provide a shed for her in the pasture, into which she can come and go at will. This, if open at one side, should be to the south; they will then get the benefit of the genial sunshine, and at the same time be protected from the adverse winds of the north and east. As there will not be an abundance of grass at this time of the year, let the mare have an unlimited supply of hay, with oats and bran, which will increase the flow of milk and give to the colt that start in life necessary to the making of a good horse. Once he commences to grow keep him growing, and at weaning time do not take him from his dam and throw him entirely on his own resources, but feed him carefully, as this is one of the most critical periods of his life. He misses the attention and milk of the mare, therefore, to keep him growing he must have some substitute in the shape of food, such as oats and a good supply of bran. Take care of him the first winter and he will come out strong and hearty in the spring, and be able to take care of himself the two following summers, but feed and house him during the winter months, and by the time he is three years of age you will have a useful horse, whether for harness or agricultural purposes.

As to the horses already at work, feeding and watering at regular hours is one of the chief items if you wish to have them fit for work and able to go through the hard days with vigor. During the busy seasons of spring, summer and harvest, be with them early in the morning, let them be fed at least two hours before taking them out of the stable to commence their daily work. Water early, and where it is convenient, give them water prior to feeding oats, anyhow, make it the rule to do so, as some horses are liable to have an attack of colic when watered as some people do, immediately after eating a feed of oats. Feed often and in small quantities, for the stomach of the horse is comparatively small for a beast of his dimensions, therefore he cannot store a large quantity of food, and withstand the long fast he is often made to do. By feeding often a great deal of waste will be avoided. Avoid constantly filling the racks or mangers with feed. A great many horsemen think that by doing this they are sure of their horse being always fresh and hearty, yet this is a great

mistake, for when fed in this manner the horse sickens of his feed, which he would not do if fed judiciously. Every good horseman knows that some horses require more food than others to do the same amount of work, therefore he must feed each according to his appetite, which a careful horseman will soon find out, and give each just as much as he will eat, and if standing in the stable until the next feeding time, let it be with an empty feed box, you will then find the horses ready for their feed, and all that unnecessary waste, which we see where horses have hay constantly before them, will be avoided.

Cleanliness is an item of no less importance than the feeding. Clean out the stable at least twice a day, for nothing is more conducive to disease than a filthy stable. As to the care of the horses during the winter months, when there is scarcely work enough to give them the exercise they require to keep them in good health, let them run out in the farm yard a short time each day when the weather permits, but do not turn them out to the straw piles in the morning, to stay there all day, no matter what the weather may be, and then expect them to come out fresh and vigorous in the spring. On the other hand, it is not requisite to feed them hard during the winter, but keep them in nice condition, and when spring comes you will have horses that are able to go through their work without difficulty, instead of a lot of sickness, which is often the case where horses are badly wintered and put directly to hard work in the spring without due preparation.

Next comes the subject of cattle, one of no less importance than that of the horse, for what farm is complete without a few cows. I do not intend to dwell on any one particular breed, nor yet on the question of cattle, but to give a few hints which may be of some use to the reader. The heifers should drop their first calves when about the age of three years. Do not breed them much younger or their development and stamina will be impaired by the constant drain upon it for the nourishment of the coming progeny, and it is a well known fact that heifers which breed too early fail to attain their full size and development. Anyway, never put them to the bull until verging on maturity. Let the calves be dropped in the spring, about the month of April, the weather will then be nice and warm, and the heifer will soon be able to go out on the pasture a little while each day, though you must not expect much grass for her so early as April. By having heifers drop their calves in the spring, they will get the benefit of the summer months during their first term of motherhood. For a while before calving, and some time after, let the food be of a laxative nature: not too much so, "the eye of the stockman should be his guide in this matter." However, avoid all foods which have a tendency to promote costiveness. Neither must we give the cow at this period any food to force the flow of milk, for by so doing, we may bring on an attack of milk fever, especially if she is in a high condition.

Here a word may be useful as to the condition the cow should be in at the time of calving. Let her be in a good state of flesh, but not fat. After calving give her tepid water to drink, and if she seems to be off her feed, gruel, composed of oatmeal, or linseed meal, will help to revive her. If she is intended for dairy purposes and is not suckling her calf, then feed the calf three times a day for about a fortnight, and of course give milk direct from the cow. After that time twice a day will suffice, and when a month old skim milk may be substituted for whole milk. Do not change the diet too rapidly, but gradually break off the whole milk by mixing with the skim. Where a lot of calves have to be fed and milk

is scarce, some substitute will be required. There is nothing can be given to better advantage than linseed meal, in the form of gruel, or ground oats, sieved and boiled.

Keep the calves growing after weaning by giving them succulent food in the shape of roots, if kept indoors. If on the pasture let it be the best you have, for if you intend to have a good herd you must pay every attention to the young stock. Where cows are kept for dairy purposes it is a mistake to keep them after their eighth year, as each year after that their qualities as a dairy cow diminish. Of course, if a cow breeds exceedingly well you may deviate a little from this course.

The frequency with which food should be supplied to cattle has never been settled. Three times a day is all that is necessary, but let it be at regular hours, and when possible let the food be varied. Give all cattle (in fact, all animals) a fair allowance of salt. A good plan is to place a piece of rock salt in the cattle troughs, and in the horse feed boxes. All animals have a desire for salt, especially if fed a large quantity of nutritious food, and this craving should be satisfied.

Cattle should always have free access to water, let them be able to get all they wish without being forced to undergo hardship in securing it. When kept indoors it is preferable to give water at least twice a day, and in winter let it be slightly warmed. If dairy cows, the extra milk they give will more than repay for the fuel and labor. On the other hand, cooking food for cattle is not advantageous, and never pays for the labor and fuel. Let the stable be well lighted and ventilated, but free from draughts, and above all things let cleanliness be strictly observed; these things are essential if we wish our herds to be thrifty and free from disease.

Last, but not by any means the least, is the pig, the breeding and management of which every stockman should be well versed in, as it furnishes us, especially in this province, with our staple article of food, and no animal can be kept to better advantage on our wheat growing farms than the hog. In selecting a breeding sow, one should be chosen which has been thrifty and vigorous in growth. A long body, deep chest, and strong legs, are the principal points. Do not always choose the prettiest pig of the litter before they have been weaned, but wait until the pigs have been weaned and fed for a month or two, then the sow from the litter which shows the greatest improvement will generally be the best sow for breeding purposes. It is important that she should be of a quiet disposition, and above all things, a good milker: as in nursing a litter of nine or ten pigs she is called upon to furnish nearly as much solids in her milk per day as an ordinary cow. Never breed from immature sows. If this course be continued the animals will degenerate in size and vigor. Boars and sows should not be used until at least eight or even ten months old. They can be kept to advantage until they are six or seven years old. There is not much danger of sows becoming useless before they are that age if judiciously kept. If a sow is well preserved she will generally give the best litter of pigs and nurse them best from the time she is two years old to six years old.

It is the practice with a great many people to have the sows thin at the time of farrowing; this is a great mistake. It will usually be found advantageous to have them in good condition; they will then be better able to stand the strain of motherhood and nurse the young pigs than when kept thin. For some time before farrowing and a few days after let the food be of a sloppy nature, nutritious but not concentrated. Let the person that she is most accustomed to attend to her at the time of farrowing, and if she is very uneasy remove the young pigs and

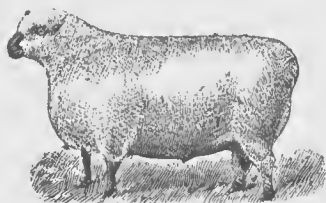
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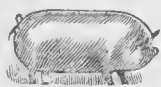


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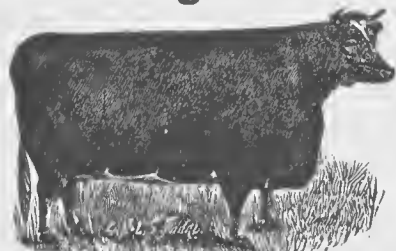
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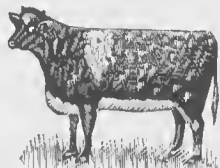
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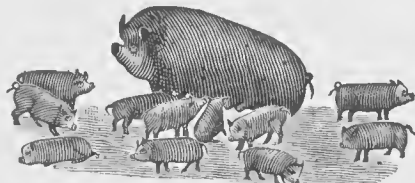
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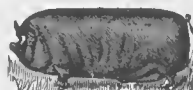
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place them in a box. Let them suckle every two hours through the day and about every five hours during the night, until she seems quiet and attached to the young ones, they can then be left with her altogether. When the young pigs are a few days old, put the sow on full feed, let her have all that she requires. The food may now consist of milk, with wheat, oats, or barley and shorts, a third of each, let all the grain be ground. Bran is also good for sows, but do not feed it to young pigs, it is too fibrous and chaffy, but may be fed with safety to older ones.

When the young pigs are about sixteen days old commence feeding them. Place a trough where they can have free access to it, but out of reach of the sow, and

August you will have a good pasture. Where the pigs are confined in pens they will need correctives, such as wood or coal ashes, charcoal or lime rubbish, such things should always be within their reach.

As to the form in which the grain should be fed, let it always be ground, and steeped six hours before feeding, unless steeped in hot water, which should always be the case in winter, as they will eat better and require less food when fed to them warm. Cooking the food is not advantageous, in fact, cereals lose some of their nutriment by cooking. Barley is certainly the leading cereal in producing pork. Corn will produce more flesh per given weight, but no cereal can compare

Of the numerous bad results of soreness and discomfort in connection with the mouth, the following faults and troubles are mentioned as being noticeable when riding or driving, viz.: crossing the jaws, keeping the mouth more or less open, lolling the tongue, slobbering, tossing the head, carrying the head on one side or the other, pulling out in double harness, or crowding in, going cornerwise, side-lining, not going into the bit, carrying the head unsteadily, pulling, balking, rearing, plunging or rushing when starting off, especially out of the stable, restlessness in standing, breaking or going unsteadily in harness when going within the horse's speed, mixing, hitching, or hopping, either in front or behind,



Farm Buildings of J. J. Corbett, Rosser, Man.

put in it a little food at a time until they get to eating. The food may consist of milk, shorts, ground oats, well sieved, corn or barley meal. Let the food be sloppy, and put about a pint into the trough, and when this is eaten give more, but do not let food stay in the trough for them to run through, or you will not have your pigs very thrifty. The pigs may be weaned at the age of eight or ten weeks. This is best accomplished by first taking away the two strongest, and in a few days two more, and so on until you have weaned the lot. See that the pigs get plenty of exercise; this is one of the chief items of management, especially with boars, breeding sows and young pigs. In summer this is an easy matter, as the pigs spend most of their time on

with barley in the quality of pork produced. In conclusion, look to the pens, and especially to the sleeping quarters. See that they are well-ventilated, and in winter warm, free from draughts, and above all things dry, for nothing will cause the pigs to go off their feet sooner than wet or cold sleeping quarters.

Bits and the Horse's Mouth

There is no point in connection with a horse that contributes so much to the pleasure, comfort, and safety of either riding or driving him as what might be called a responsive mouth, which obeys the slightest intimation promptly of re-

interfering, and bridle lameness. Other causes operate in producing the faults enumerated, but the most prolific one in the majority of instances is some discomfort with the mouth.

As a rule, troubles attributed to the mouth are sought to be corrected by rasping the teeth, when the real source of irritation—the bit—is used day after day applied to the tender spots. It is not a matter for wonder that a horse with an abraded jaw should hang back, especially in the morning when first taken out. Such horses, if predisposed, become back-ers. The high-couraged horse, though he may hesitate at first, will, as soon as the part becomes numbed by pressure, or he becomes desperate with the pain he is suffering, begin to pull and show evi-



On the Farm of Jas. Robertson, Treherne, Man.

the pasture, but in winter it is rather difficult to get them to take enough exercise. When the weather is not too cold or stormy let them have a run in the open each day, but in very severe weather a good plan is to sprinkle a few oats or other grains on the floor of the pen, they will get some exercise by picking them up, and hustling about for the grains, but see that the floor of the pen is sound, for if uneven or full of crevices it will encourage them to root, a habit far from desirable in the pen.

Clover or alfalfa makes a good pasture, but where these cannot be grown advantageously rape will prove a good substitute and is quickly grown. You may sow it broadcast, in June, at a cost of one and a half dollars per acre, and by

straint or guidance. Dr. F. C. Greenside, who for a number of years was Professor of Veterinary Science, at the Ontario Agricultural College, Guelph, read a paper on this subject at a recent meeting, from which we summarize the chief points. He says:—

Horses whose mouths are not good are very subject to soreness occasioned from injury from the bit, and the result of this soreness is manifested in a variety of ways. Curb bits with stiff mouthpieces often bruise the branches of the lower jaw at the points where the bit presses. Jointed or snaffle-bits seldom injure the branches of the lower jaw, but sometimes press the cheeks against the forward molars, and abrade the inner surface of the cheeks.

dence of the discomfort in the many ways already described, such as crossing the jaws, going with the mouth open, head on one side, etc. The irritable, sensitive horse is apt to manifest his pain in a more demonstrative manner, and we may find him going off with a rear, rush, or plunge, which may soon become a confirmed, dangerous, and disagreeable habit. Unfortunately, the condition is by no means uncommon, and could be easily prevented were it realized that it is due to soreness of the mouth, and rational measures adopted.

Besides the discomfort, difficulty, and danger of driving a horse with a bad mouth, there is also apt to be produced irregularity of the gait and impaired control of the legs. What is called "hitching"

or hopping off one leg, generally a hind one, although due to weakness, too heavy a load, driving beyond speed, heavy shoes, etc., is not infrequently due to tenderness or soreness of the mouth, or placing the bit too high in the mouth. In high couraged horses whose mouths have become permanently injured from the bit it is a difficult matter to overcome the habit, but if the mouth is allowed to heal thoroughly, the bit placed as low in it as the animal will stand and face it with a moderate degree of firmness, and not put his tongue over it, the fault will often be remedied.

Seeming lameness from a sore mouth is by no means uncommon. A horse will nod his head or hitch on a hind leg as rhythmically as if he were actually lame. And it is very difficult to persuade people sometimes that a horse is not lame when he nods or hitches from a sore mouth. Sometimes green horses with sore mouths will appear to be lame when driven with a certain kind of bit, that will go all right with another, and occasionally a horse will show lameness on one side in a pair that will show no irregularity when driven on the other. Before deciding such horses are lame they should be jogged on the line.

While want of balancing or proper distribution of weight in shoeing will to some extent cause mixing of gait, trouble in the mouth is more commonly to blame. A horse inclined to mix usually has an unsteady mouth. He does not take the bit with necessary firmness, and keeps retracting his tongue or putting it over the bit, so that the pressure usually comes on the branches of the lower jaw, giving rise to irritability and a want of confidence in the animal's manner of going. In such cases a comfortable bit should be used and placed well up in the mouth. Sometimes a bit with a flexible rubber mouth-piece or an arched stiff one will answer, and it is also well to leave the bit in the mouth for several hours a day in the stable, so as to get the tongue used to its pressure. Applied pressure from day to day with a dumb jockey is also recommended.

A driver should exercise much vigilance in placing the bit in a horse's mouth. The lower the bit is placed in the mouth, within certain limits, the better, providing the horse will take it. With a moderate degree of firmness keep his head steady and his tongue under it. In those horses, however, which do not force the bit steadily, it is usually better to raise it in the mouth, and as the mouth becomes firmer, lower it. Fatigue, bad shoeing, rough and slippery roads, and the swaying of a heavy cart, are all exciting causes of interfering, but there is no doubt that imperfect biting, with incidental soreness, is an important exciting factor in causing the awkwardness of "striking" or "bruising."

CATTLE.

When Doctors Differ.

At the annual meeting of the Western Stock Growers' Association, at Macleod, in April last, some correspondence was read in connection with an outbreak of mange upon the range. Among the letters read was a report of Veterinary Inspector Wroughton, of the Northwest Mounted Police, in which the statement was made that the disease in question was of a non-contagious nature and the general extent of the same was due to the fact, that the same conditions of range management, etc., existed, which would induce the disease in question. A larger number of losses occurred on the range from exposure, owing to the cattle shedding their hair, which is one of the symptoms of the disease, in fact, a very serious state of affairs existed.

In the last issue of The Farmer there appeared an open letter by Dr. McEachran, the chief Veterinary Inspector of the Dominion, addressed to the stockmen of Alberta. In this communication Dr. McEachran states:—" . . . It is a mistake to suppose that this is a non-contagious disease. It is a true scabies, or mange," etc., etc. It is a little hard for the layman sometimes to appreciate the nice distinctions between scientific diagnoses; here, however, he can plead no excuse. One doctor tells him the disease is contagious, and the other, that it is not, in plain, unmistakable terms. In the meanwhile the stockmen of the west have wasted valuable time in fancied security and now they are urged by one in authority to adopt heroic measures.

The Farmer is of the humble opinion that heroic measures are undoubtedly required. Similar diseases have devastated herds in Texas and other southerly states, while Australia has suffered materially. Dipping shutes have been constructed in large numbers throughout the southern states with the best results. The question naturally arises, who is going to do it?

The cattlemen of the west have not in the past supported the Western Stock Growers' Association. This organization has earned for itself a reputation of being merely representative of the larger stock interests. If the association was liberally supported by all classes of stockmen, it would clearly be the proper medium through which measures, such as recommended by Dr. McEachran, should be taken; but as matters stand at present, it would not be unreasonable to ask the Dominion Government, which has charge of the veterinary service of the Territories, to construct dipping yards and yards, or at least make the association a very liberal grant towards the cost of the same.

Skim-Milk Calves.

The Farm Department of the Kansas Experiment Station has issued the following bulletin on feeding calves:—"Allow the calf with the fresh cow four or five days. This gives the calf a vigorous start and aids in reducing any inflammation in the udder of the cow. Wean by feeding 10 pounds (1 quart equals about 2 pounds) whole milk daily in three feeds, and gradually increase the amount to 12 or 14 pounds, always weighing or measuring each feed. More calves are lost by over-feeding than for any other reason. When two weeks old the calf may be changed to skim milk, but not faster than a pound a day, i.e., the first day give 11 pounds of whole milk and 1 pound of skim milk, the second day 10 pounds whole milk, 2 pounds skim milk, and so on until the change is complete. The amount of skim milk may be increased gradually, but not to exceed 18 to 20 pounds daily per head.

Flax-seed gruel may be added to replace the butter fat. This is made by mixing ground flax-seed in cold water, adding boiling water and allowing to steam a few hours with cover on the pail. A teaspoonful of this gruel is enough at first, but this may be increased gradually to one-half pound of the meal daily per head. Flax-seed is better than linseed meal since the oil is needed to replace the butter fat. Blachford's meal is an excellent calf feed and may be used the same as flax-seed. The college recently started an experiment with calves, feeding part on fresh skim milk from the hand separator and part on sterilized creamery skim milk, and at the same time is testing the value of flax-seed meal and Blachford's meal for calves against skim milk alone. All the calves are allowed what Kafir corn-meal, hay and green alfalfa they will eat. The results are being watched with great interest.

Calf milk must always be fed blood warm (95 to 100 deg. F.) and a care-

ful feeder will occasionally test the temperature with a thermometer. Skim milk not used when separated may be cooled and rewarmed when fed. Sterilizing creamery milk greatly increases its value for calves by enabling the farmer to keep it sweet until the following morning. At the college we keep sterilized creamery skim milk sweet from Saturday until Monday morning by cooling to between 56 and 60 degrees F., the temperature of well water. Sweet milk at one meal and sour at the next causes scours and seriously checks the growth of the calf. Sterilizing skim milk has an additional advantage in that the heating helps to prevent scours.

Calves will begin to eat meal when ten days to two weeks old. Put a little in their mouths after feeding the milk, and they will soon eat from the feed boxes with a relish. Never mix the grain with the milk. We find Kafir corn-meal an excellent grain for calves. It is constipating and checks the tendency to scours. Our calves that average eight weeks of age consume two pounds daily per head. As the calves grow older and eat more grain the Kafir corn may be mixed with oats, bran or oil meal.

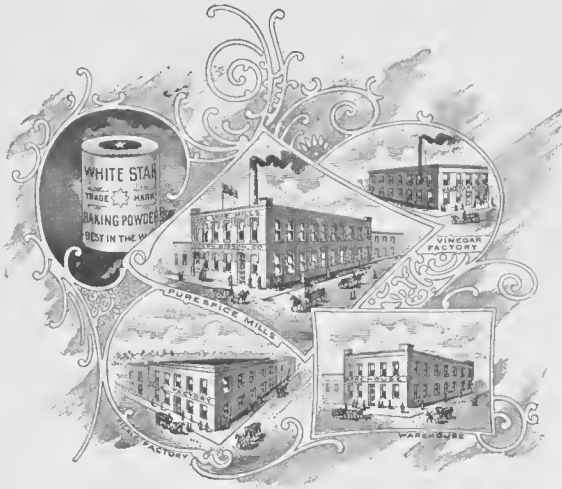
Calves will nibble at hay about the time they begin to eat grain. Mixed or prairie hay is good; alfalfa or clover is better. Our calves have been eating about one pound daily per head of mixed hay. Before turning on pasture in the spring it is well to feed some green feed which may be increased gradually until calves get all they will eat. A sudden change to pasture is apt to produce scours.

Calves can be prevented from sucking each other's ears and mouths by leaving them tied separately for a half hour after feeding. Calf buckets may be kept clean by rinsing and scalding after using. Calves need clean fresh water and salt. We find the Dewey hog waterer an excellent device for watering calves. The water is always clean and fresh. Our calves drink between 7 and 8 pounds daily per head.

To summarize, warm, sweet milk, fed in clean buckets, supplemented with a little ground flax-seed or Blachford's meal with access to corn or Kafir corn-meal, bright hay, fresh, clean water, plenty of sunlight, shelter and bedding in cold weather, shade in summer, and regularity and kindness in treatment will usually insure good thrifty calves that will gain from 1½ to 2 pounds daily.

Against Linseed Oil Cake.

East Lothian is a great beef feeding district of Scotland and a feeding test made there last winter has shaken considerably the old established faith in linseed cake as a feeding standby. Turnips and straw have been the principal ration, but to them were added rations of four different make-ups, and an equal number of cattle fed on them for 14 weeks. A lot fed decorticated cotton cake, maize meal, swedes, hay and straw, made a daily gain of 2.39 lbs. per head per day. Lot 2 had linseed cake along with the swedes, hay and straw and made 2.34 lbs. a day. Lot 3 had the same as the first, but crushed oats, instead of the maize, and gained 2.49 lbs. per day. The greatest profit was made on the first lot, the least on the second, the third came between. The cotton cake and maize meal gave most profit on the outlay and left the best manurial value. The maize-meal and cotton-cake cost in England \$10 a ton less than the linseed cake. A similar test in England on a smaller scale brought out exactly the same result. Cotton cake along with turnips, hay and straw was also tried in the East Lothian test, but the return in live weight was not so satisfactory. The maize ingredient was where the profit came in, assuming that the selection of the stock to be fed was properly made.



DAVID J. DYSON, PRESIDENT
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IMPORTERS OF
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 WHITE STAR BAKING POWDER FLAVORING EXTRACTS
 VINEGAR PICKLES SAUCES SPICES.

Winnipeg, Man.

July 1, '99

Dear Madam:

If you are accustomed to using CREAM OF TARTAR Baking Powder we would like you to consider the following 'bona fide' opinions of men qualified to judge in these matters.

"All CREAM OF TARTAR Baking Powders, whether pure or impure, produce ROCHELLE SALTS in bread-making."—Dr. Francis Wyatt, Ph. D., F.C.S.

"Whenever CREAM OF TARTAR is used it is chemically changed to ROCHELLE SALTS."—Dr. E. H. Bartley, Chemist.

"The CREAM OF TARTAR leaves ROCHELLE SALTS as a residuum."—Wm. E. S. Fales, E. M., L. L. S.

This will appear as plain to you as to us, when we show you how these salts are formed—When 188 grains of Cream of Tartar are mixed with 84 grains of Soda, 44 grains of Carbonic acid gas (which causes the bread to rise) are evolved and 210 grains of dry residual matter are left, technically known as 'Rochelle Salts.'—Now 'Rochelle Salts' are decidedly injurious. Their ultimate effect is to produce chronic dyspepsia of the stomach and Bright's disease of the kidneys. Of course in a moderate use the effect, though still harmful, is not so marked. Here are the opinions of a few physicians:

"Rochelle Salts would inevitably injure the bowels by constant irritation."—Dr. W. H. Dustman, Ph. D.

"The persistent use of Rochelle Salts almost invariably results in severe and chronic constipation."—Dr. W. J. Purcell.

"I have not the slightest doubt but that the mental and physical health of thousands is permanently injured by the use of Rochelle Salts in impure beer, bread and other forms of food."—Dr. A. Warner Shephard.

The reason we have given you these statements is because we have gone to great expense and effort to produce a WHOLESOME Baking Powder, viz: WHITE STAR, and we think it but fair to ourselves to show that although Cream of Tartar Baking Powders are sold at a much higher price, their use is injurious to the health.

'WHITE STAR' is a Phosphate Baking Powder equal in PURITY and LEAVENING STRENGTH to ANY Baking Powder made. When used there is also a residuum but it is a PHOSPHATE and is neutral and harmless, as any qualified chemist will attest.

We ask a trial of our brand 'WHITE STAR,' because we believe its QUALITY and PRICE such as to justify your patronage.

Yours very truly,

THE DYSON-GIBSON CO.

Winnipeg, Man.

NOTE BENE.—If you will return this circular to us we will mail you a small package of our "WHITE STAR HEALTH COFFEY" or WHITE STAR Ceylon Tea. If a wrapper is used a one cent stamp will bring it to us. BE SURE to write your name and address plainly on the WRAPPER, not on the circular, so that we will not have to pay letter rate.

WHEN BUYING
WHY NOT
GET THE BEST?



Birtle, Man., Oct. 10, 1898

The Cream Separator Co., Winnipeg.

Dear Sirs,—I have been using a MIKADO SEPARATOR for about three months, and am more than satisfied with the result. We have made fully 80 per cent. more butter from its use than could be done in any other way. I believe, from experience and observation, the MIKADO the best separator on the market to-day.—Yours truly, S. LARCOMBE.

Woodlands, Man., Feb. 1899

In answer to your enquiry as to how I like the MIKADO SEPARATOR, I would say if they are all like the one I got, they are just the thing. We tried 100 lbs. milk by the gravity process, and received 3¼ lbs. of butter; then 100 of milk put through the MIKADO HAND SEPARATOR, and received 4¼ lbs. of butter, a gain of 1½ lbs. of butter. They are very easily cleaned, and make less noise than the—. Yours truly, MRS. GEO. BROADBELT.

Mrs. Broadbelt gives the name of another separator, but we have omitted it.

ASHFORD'S DAIRY KITCHEN, Winnipeg, April 5, 1897

Gentlemen,—I have been using an EMPIRE MIKADO SEPARATOR now almost daily for the past year, and during that time it has given perfect satisfaction. It skims clean, works easily, and can be washed and put away in a few minutes.—Yours truly, F. ASHFORD

ALWAYS THE BEST.

MIKADO CREAMSEPARATORS.

"When Rogues fall out, there is a chance for honest men."

We commend to the attention of our friends the controversy between two rival separator agents about their machines in this journal during the past few months, in which the strongest argument used on either side is "you're another," and it is generally conceded that they are both right in their argument.

Brightside Farm, Strathewen P.O., Man., Feb. 25, 1899

I wish to certify that I am thoroughly satisfied with the MIKADO CREAM SEPARATOR. I purchased it last summer, after a trial of two other much lauded machines, and I found the MIKADO the easiest to operate, the easiest to clean, and by far the simplest and cleanest skimmer. As to durability, I am satisfied that it will last as long as anyone can expect a machine to last; with the other machines the operator would soon wear out. My little boy of six can easily run the MIKADO; a strong man would be required for one at least of its rivals.—HENRY NEWMARCH.

Any child can run the MIKADO, and it's been run twice a day since I have had it.—H. N.

Lorlie, N.W.T., June 9, 1899

Gentlemen,—I have now been using a MIKADO SEPARATOR for over a year, every day, winter and summer. It runs one half easier than any other separator I have ever tried, skims clean, and has given me the utmost satisfaction, and I have recommended it to all.—MRS. R. B. ALDOUS.

Regina, January, 1897

Gentlemen,—In answer to your enquiry as to how I like the MIKADO SEPARATOR I got from you last spring, I would say that it has done all you claim for it and has given me most perfect satisfaction. I have compared it with other separators, but consider that for a hand machine there is nothing in the market to equal it. It runs easily, skims clean, and is very quickly washed and put away.—Yours truly, D. A. McDONALD.

Reaburn, January 11, 1897

Gentlemen,—It gives me great pleasure to testify to the merits of the MIKADO SEPARATOR I had from you last spring, and which I have been using ever since. I found it fully up to your representations, having tested it both as to capacity and clean skimming. It separates 250 lbs. per hour, and does it well, leaving hardly a trace of cream in the milk, is easy to work, easily cleaned, and has given me entire satisfaction.—Yours truly, GEO. C. WEMYSS.

The above is for the 1896 model, capacity 250 lbs. per hour.

April 16, 1898

After using your separator two years, both winter and summer, we are well pleased with it in every way.

(Signed) GEO. C. WEMYSS.

The Hermitage, Headingly, April 1, 1898

In compliance with your request re MIKADO CREAM SEPARATOR, I take great pleasure in giving an unqualified recommendation either for summer or winter use, but particularly the latter. We have proved that double the quantity of butter can be made in the winter, saving a great deal of labor, expense in cans, and last, but not least, separated cream can be churned in half the time.—W. B. HALL.

As one who has spent almost a lifetime in toiling at dairy work, I would say since we got the separator last July, work has ended and pleasure begun. Profits have increased immensely and labor lightened wonderfully, and all in Headingly like the MIKADO better than any separator in use.—MRS. M. M. HALL.

Stonewall, April 6, 1898

I have now been using a MIKADO SEPARATOR for the past two years, every day, winter and summer. It runs one half easier than any other separator I have ever tried, skims clean, and has given me the utmost satisfaction.—ALEX. MATHESON.

Ceodmore Farm, Solsgirth, Oct. 24th, 1898

Gentlemen,—I desire to say how well pleased I am with the MIKADO SEPARATOR. It does its work thoroughly, and is very easy to run.—JOHN L. WHITWORTH.

Belcarris, April 8, 1899.

Gentlemen,—I have been using one of your MIKADO SEPARATORS that I purchased from your agent at Lorlie for the past season. It is all that it was recommended. Skims clean and easier than any other machine I have tried.—Yours truly, JOHN MORTON.

Lorlie, April 20, 1899

Gentlemen,—I have been using one of your MIKADO SEPARATORS for the past season, and it has given me entire satisfaction, together with clean skimming and easy to turn. I find it far ahead of any I have seen.—Yours respectfully, JOHN MCKELL.

MANITOBA CREAM SEPARATOR CO., 157 Bannatyne Street, WINNIPEG.

THE QUALITY OF THE OIL IS THE LIFE OF THE PAINT.

Stephens'

PURE
READY
MIXED

PAINT

MADE WITH MANITOBA LINSEED OIL.

Now USED BY THE PRINCIPAL RAILWAY AND ELEVATOR COMPANIES IN MANITOBA AND NORTH-WEST, and Sold by Leading Hardware Houses in almost every town between Fort William and Vancouver.

Manufactured by G. F. STEPHENS & CO., - Winnipeg.

Dysentery in Calves and Other Young Animals.

The Kansas Experiment Station has issued a bulletin on the above subject and from it the following extracts are taken:

NATURE, OCCURRENCE AND CAUSE.

Dysentery in young animals is most frequently met with in calves, but also causes untold losses in pigs, lambs and foals, and is common in dogs and cats. That a similar disease occurs in human beings is a well-known fact. This disease is so common in many localities, becoming more prevalent from year to year, that in some places the growing of young stock must be abandoned.

The disease attacks, chiefly, animals from 1 to 4 days old; after that age it is a much rarer occurrence. Often the animals become attacked immediately after birth, without previously having taken any food whatever. This seems to prove

too well-known by some cattlemen. In calves we find the following: loss of appetite, diarrhea (very soft or even watery evacuations), restlessness, tenesmus (ineffectual straining to pass dung), and cries of distress. Later, the excrements, which at first are of a gruel-like consistence and of a yellowish color, become watery and whitish in color, mixed with mucus and particles of coagulated milk and even blood. At this stage the excrements have a most disagreeable fetid odor. Finally, involuntary evacuations take place, the animals become weak and lie down continually, have cramps and spasms and discharge saliva from the mouth. The eyes become sunken, the hair rough, and general indications of emaciation can be observed.

Death may occur within twenty-four hours of the appearance of the first symptoms, but as a rule not until the lapse of two or three days. The mortality is very high (80 to 100 per cent. of all attacked animals die). Frequently every calf in a

and medicines administered internally. Animals already attacked may be treated as follows: Give calves two or three tablespoonfuls of castor oil, lambs as many teaspoonfuls. Colts may be given one to three grains of calomel three times a day. The calomel, after being triturated with a little sugar, may be added to a little milk and fed to the colt. On the following day, or after the oil (or calomel) has had its effect (laxative), the following, recommended by Friedberger and Froehner, may be given:

Powdered rhubarb root, one drachm; powdered magnesium carbonate, 15 grains; powdered opium, 30 grains; good brandy or whisky, 2 ounces; mix, dilute with equal parts of water, shake well, and give to calf as one dose, repeating a similar dose every three to six hours until the diarrhea is relieved.

In the same manner colts may be given 1 to 2½ drachms of tincture of opium, lambs 30 to 60 drops, repeating the dose, as above, every three to six hours until



View on the Indian Head Experimental Farm.

that the milk of the dam cannot be considered as a factor in producing the disease. A further proof to this effect seems to be the fact that the feeding of milk from stables free from this disease is no hindrance to its development.

Although the infectious principle is not known, there is no doubt that the disease is infectious and that the excrements harbor the infectious principle and constitute the chief medium for its dissemination.

It seems that the disease can be transmitted not only from animal to animal of the same species, but also to animals of different species, e.g., from calves to lambs and pigs (Kotelman). Friedberger and Froehner mention the fact that infectious abortion and infectious scours (dysentery) often occur at the same time and thus seem to have something in common.

SYMPTOMS.

The symptoms in different species of animals are much the same and are only

stable will succumb to the disease. When animals recover they remain weak and unthrifty for a long time.

The symptoms in lambs and colts are much the same as those given for calves. A few other diseases, which may be confounded with dysentery, are sometimes met with, but careful observation and the consideration of all facts presented will guard against a false diagnosis.

TREATMENT.

Our greatest, and I might say, our only hope, lies in prevention. Prevention consists in the isolation of the healthy and the diseased animals, and in the thorough disinfection of the infected stables, yards and pens, as well as in disinfection of the female genital organs (before and after parturition).

The isolation of pregnant cows and their removal to new, or thoroughly disinfected old, quarters, a week or ten days before parturition is an excellent plan. This is more rational treatment and promises better success than any amount of drugs

relieved.

The following treatment was used with success by the author; Take wood-tar, one pound, place in a vessel and pour over it three gallons of boiling water; allow to cool and pour off the straw-colored liquid (tar water), which is used as follows: As soon as the calf shows symptoms of diarrhea, inject, with a syringe, one-fourth pint of this liquid into the rectum. Repeat the operation every half-hour. Use a hard rubber syringe with a long nozzle, oiling it, if necessary, to facilitate its insertion and to prevent its possible injury. Next day continue this treatment, and, in addition, dilute all milk fed to the calf with one-fourth its bulk of this tar water. Keep this up until recovery sets in. With this, as well as any other treatment, the most important thing must not be neglected, viz.: providing for the tender young animal's comfort. Provide a clean, comfortable stable, plenty of fresh bedding, which must be renewed every day, pure air, light, quiet surroundings and gentle treatment. If the animal

is allowed to suck, wash teats of dam with a 3 per cent. creolin solution (tablespoonful creolin to one pint of water) immediately before. If calf is fed by hand, wash your hands in hot soap water, using a stiff brush, and then rinse them in 3 per cent. creolin solution. Keep pails and all utensils, with which milk is handled, scrupulously clean by means of frequent scaldings. Disinfect stables and yards frequently with a one-fifth per cent. solution of bichloride of mercury.

Pregnant cows should be treated as follows. A week or ten days before they are due to calve, isolate them and inject (gently) one-half pint of a 3 per cent. creolin solution into the vagina. Repeat this operation every day until the calf is born. After the calf is born inject half a gallon of this solution into the uterus, repeating the operation once daily for three or four days, or until all unnatural discharges cease.

All this means strict attention, study, work, and a little expense, but without these do not expect or even hope for success.

A New System of Brands.

The settlers throughout the Territories will hail with delight the announcement recently made, that a change has been adopted in the system of allotting cattle brands. Hitherto all cattle brands consisted of two letters and a numeral, viz., CB2, and this brand was recorded for the whole of one man's animals. Some three or four thousand of these combinations have now been registered and the system pronounced inexhaustible, has "played out." Those parties who have not yet applied for their brands, will not be sorry. The new system adopted by the Department of Agriculture is simplicity itself. A number of the characters used in the old system have been discarded, such as B, R, 8, and others, while a few have been added. These characters are grouped together with certain signs, usually straight bar, quarter circle and half diamond above or below. Three characters are used in each brand, one letter, one numeral and one sign, which makes a very plain and compact brand. It is to be hoped that when the Manitoba authorities commence the recording of brands, care will be exercised to profit by the experience of the Territories, where the number of recorded brands is said to exceed 8,000 and where a great deal of ill-feeling and bitterness was engendered in the attempt to reorganize the whole branding system. Every stockman in the west is willing to admit that the result has been most satisfactory; but probably the same end might have been reached by a slower and less radical measure.

A western stockman recommends the external application of a lotion of vinegar and saltpetre for the drying up of cows which it is desired to fatten.

Various remedies have been suggested from time to time for bloating, but the latest has just come to hand. It is given as a sure cure by the man who suggests it:—"Throw a couple of pails of cold water along the animal's back. This may seem very strange, but I have tried it with success many times. Fifteen years ago I was loading cattle on board a boat at Dublin, Ireland, to ship to Liverpool, when we noticed one steer which was badly bloated. We had to drive him out of the pen into an alley which was quite close to the boat; he turned around and fell over into the river. He swam around for some time, and when we got him out he had no bloat. Since then I always apply cold water and can recommend it as a sure cure."

Science of Breeding—In-Breeding.

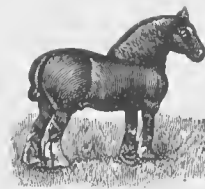
As we improve our stock we become interested in the science of breeding, and while inbreeding is generally considered detrimental to the vitality of our improved stock there is no more potent factor of improvement when properly directed by the skilful breeder, who knows where the danger line is, who knows the benefits of thus establishing and reproducing a superior type of inbred sires and dams. Wm. Housman, the ablest authority on the science of breeding, and the author of some of our most reliable works on live stock, is the author of the following valuable article on inbreeding:—

This subject has been so much discussed as to seem somewhat the worse for wear. Yet surely it must have a toughness in it that resists all powers of controversy. It never gets settled. There is so much to be said on both sides, and so much of what is said is thought worth saying again that the question is irrepresible.

First, there is the ancient prejudice against inbreeding: the notion that if a male of a certain strain of blood has been introduced, no more of that strain must be admitted, through male or female. The female offspring of that male must be paired with a male or males of totally alien blood, and so the country, the world if necessary, must be searched for an unrelated family from which to take each successive male. This old notion was perhaps mainly the bar to improvement of live stock before the days of Bakewell. This I would be understood to say with admission of exceptions. Although Bakewell set the breeders going upon a new line, that of bold exclusiveness, as a rule, at least during the upgrowth of a breed, possibly he was not quite so original a worker upon that line as is commonly supposed. There were the Aislabies and the Blacketts, and other families whose names are familiarly associated with the materials which went into the composition of that foundation on which the Shorthorn breed as improved in the last century was built. They had good herds,

which they kept much to themselves, or within the circles of their friends and neighbors; and it seems highly improbable that they risked the loss of type by taking in much strange blood. One can scarcely doubt that long before Bakewell's day their ancestors were using, generation after generation, their home bred bulls with cows of the same blood, often more or less closely related to the bulls used.

The writer was once in company with the steward of a nobleman's estate, attracted by the great beauty and uniformity of a herd of deer, which, as all by one impulse, raised their heads, faced, and stood looking at their visitors as they passed beneath the patriarchal trees of the park. "This herd," the agent said, "has been bred in-and-in exclusively for two hundred years." Now if in one park the deer had been kept so long without one single infusion of new blood, is it not likely that in another park, where a herd of cattle, of much more than average ex-



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DRAFT HORSES
from 1200 to 1600 pounds.

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CLYDES, PERCHERONS
AND SHIRES.**

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HOLSTEIN CATTLE. YORKSHIRE PIGS.

One 9 months Bull Calf for sale, of good dairy strain. Young Pigs now ready for delivery.

A. B. POTTER, Montgomery, Assa.

Large English Berkshires

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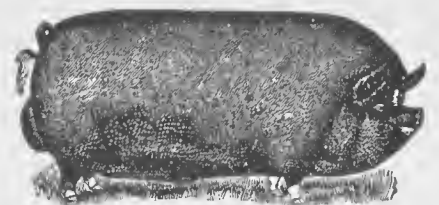
R. McKENZIE, HIGH BLUFF, MAN.

will appear again at the principal shows in the Province in July.

Young Pigs a Specialty.

Sired by three first-class boars, so as to have pairs and trios not akin. A number will be for sale on the Fair grounds.

The herd won last year 30 Premiums, 13 Firsts, 13 Seconds and 4 Thirds at Winnipeg and Brandon Fairs against strong competition.



HERD HEADED BY PERFECTION,

(4760) Winner of 11 First Prizes, including what he won in Ontario and Manitoba. Weight 750 lbs. when shown in the Yearling Class.

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DENTONIA JERSEY HERD.

2 HANDSOME YOUNG BULLS For Sale

Fit for service, one out of imported stock and one a splendid individual of the St. Lambert family, and exceedingly well bred.

This herd comprises several head of imported Jerseys. It won the herd prizes at Toronto and Loudon Fairs last fall.

cellence and of one uniform type had been preserved from time immemorial, care would be exercised to maintain the purity of the blood. Could this be done more safely than by breeding always within the herd? The breeding need not be necessarily the very closest. By marking the animals and keeping records of their parentage, a sort of rough private herd book might be established in the estate office, and by keeping a plurality of bulls and regulating the pairings, the dangers, if any, of continuous inbreeding within near degrees of relationship might be avoided; and yet, whilst "ringing the change," or, to vary the figure, making a see-saw or net-work of various distant relationships, no really strange blood would come into the herd.

The greater probability, however, is that no such pains would be taken to regulate the alliances. One bull at a time, or two bulls alternately, at the most, would be likely to be allowed to run with the whole lot of breeding cows, leaving to what is called "chance" the decision whether parent and offspring, brother and sister, should or should not pair. If this was likely to be the case with more or less domesticated cattle down to the time immediately preceding the work of the Brothers Colling with the Shorthorns, what shall we say of the wild and semi-wild cattle of the parks? and what of the herds of monastic establishments in past centuries? When we read of the gigantic oxen of 150 years ago, and of earlier times, we read what is perfectly true; the farmers generally, wanting powerful oxen for the plough, bred much for size so long as ox labor was used. But we must not forget that the monks were men of learning, and by education of mind and taste competent to think out improvements for which the ordinary tiller of the soil had neither time nor capacity. Hence the tradition of herds of superior beef cattle in their possession, with scraps of confirming evidence of the truth of such tradition, do not surprise us. Now, is it not most highly probable that the good herds in good Abbey lands were kept as free as possible from mixture with the coarser cattle outside?

If these things were so, Robert Bakewell's new system was little more than a lost history repeating itself. But—some one may object—the probability of breeding even exclusively within the herd, does not necessarily mean breeding in-and-in as Bakewell did and as the Collings did. Very true. There is a difference of degree, if those old herds were not bred so closely as regards immediate relationship. We do not know that they were, nor that they were not, so bred. But this question of degree is just what we want to consider more carefully. Seeing that the most wonderful improvements have been effected by inbreeding, and that much mischief has been done by extravagant and needless inbreeding, let us candidly admit the value of the principle of inbreeding but guard against the misuse of that principle.

As already observed the principle has been most beneficially used during the rise of breeds. No pioneer, however, so far as the present writer knows, has launched into close inbreeding at the very outset. He has first selected the animals which united, would, in his judgment, give something like an approximation to his ideal of what an animal should be. When by judicious selection of animals (mostly, it is here suggested with some confidence, unrelated) he has gained a step or two towards his object, then he in-breeds, to fix the newly acquired character, and he goes on inbreeding so long as he considers that to be his best and safest practice. It is said, truly enough, that when a type is once fixed and a breed established, inbreeding may well stop. But even here we must beware of prejudice. The need of consecutive un-

ions of closely related animals may be past, yet to keep a type true, a moderate extent of inbreeding may be often wise and safe practice. Perhaps it would be well to vary the degrees of relationship: not parent and offspring again and again, not brother and sister too often; but keeping generally within a group (herd, stud or flock) of animals bearing some common relationship to each other, to avoid as general practice, but admit as exceptions (where the judgment is competent to decide) the degrees of relationship.

The Vicious Bull.

In this, as in many other troubles, prevention is better than cure. If you find your own or any other idle boy "fooling" with a young bull try to give them such a scare as will cure them of the inclination for that kind of fun for the remainder of their natural lives. It is here that vice is often worked into the young bull's nature. Unwise management is another cause of vice. Healthy exercise with some other animal for company, is a help to keeping the bull good natured. Don't trust the best of them too much.

A writer in the Breeders' Gazette says: "For a really vicious bull that is out with the cows in pasture any contrivance put on his head, when he has no horns, I do not believe would be much of a success. It would be difficult to keep in place and he would be sure to break or pull it off. The owner should keep him in a box-stall opening into a small paddock with a bull-proof fence. Turn him loose in this, feed and water him from the outside and let him severely alone. This is generally the way such bulls are handled. The cows would have to be brought up to him and turned into a small enclosure where the bull or cow could be forced out again without the attendant going inside the fence. If I owned a herd of good cows and this was my bull, instead of a helmet on his forehead I would put a good big bullet-hole there and send him to the shambles. I have two reasons for such a drastic remedy for a bad-tempered bull. In the first place, that is the only treatment that will ever make him safe to handle. An experienced and nervy herdsman can often control and handle such bulls, but eternal vigilance is the price of his life, and depend on it, if you are afraid of the bull he will know it just as soon as you do. The second reason is based on the law of heredity that like begets like. The bull will just as surely transmit his disposition to his offspring as he will his color or any other of his individual characteristics. Further, a bull with a nervous and pugnacious disposition is nearly always noisy, restless and fretful, and practical and observing breeders know that such an animal is a bad feeder.

In my opinion a great many breeders fail to see the importance of a kind and docile disposition, especially in a male animal, for if a bull is half the herd they have his temper in the same degree. The difference in the get of a bull with a vicious disposition and one that is kind can be most readily noticed when they are being tied up for the first time or halter broken, and the bulls among them, when they get about two years old, will nearly always commence to show that they are a chip off the old block. There are bad tempered bulls in all breeds and the sooner they are sent to the butcher it will as a general rule be the wisest way to cure them."

"Have you got any embalmed beef?" asked the joker, of his butcher. "No," replied the dealer, off his guard; "but we have something just as good."

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The only remedy that will positively cure Scab in sheep. It is also invaluable for the cure of Skin Diseases in cattle, such as bruises, sores, ringworm, gangrene, shear cuts, and for ridding them of vermin. Widely endorsed by the leading stock-raisers of Canada as the best preparation of its kind in the market. Try it.

Persiatric Pig Wash

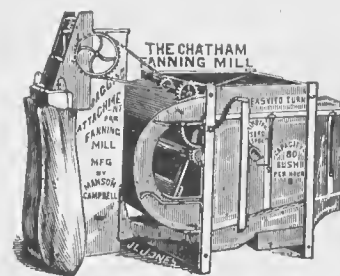
This preparation acts most satisfactorily on the stubborn Skin Diseases in swine. Has a soothing, healing influence, healing sores and eczematous diseases, and rids the animal of vermin. It acts as a tonic on sickly, depressed animals. Used a week or so before slaughtering, it makes a handsomely dressed animal for market.

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Worthless Certificates.

Our readers may remember that at the last meetings of the Live Stock Associations at Toronto complaint was made that parties had used fraudulent certificates in order to obtain reduced rates for stock when shipping them to the west. One case in point was a pair of horses registered in E. King Dodds' Record. The railway authorities declined to recognize Dodds' certificates and the matter was looked into and a conclusion reached by the secretary of the Live Stock Associations. As this decision is of some importance, we give it in full, as follows:

"Mr. Dodds' record is a private undertaking. It would have been just as proper for any other man residing in Canada who keeps a record of his live stock, to receive animals for registration and issue certificates. I am informed that it is not E. King Dodds' intention that certificates issued by him should be used for this purpose, nor was it the intention of the railway companies or of the officers of the Association who interviewed them and obtained the present concessions, that certificates of this sort should be used in this way. If such a course were followed, the agreement entered into between the associations and the railroad companies would be farcical in the extreme. There would be nothing to prevent any man from keeping a record, setting up any standard he pleases, and shipping grade animals at pure-bred rates by the use of these private certificates. It was conduct similar to this that caused the American government to discredit all Canadian records. Conduct such as this would very soon cause the railroad companies to repeal the circulars granting the long-sought-for privilege now enjoyed by the breeders."

The 14th annual meeting of the Holstein-Friesian Association of America, held recently at Buffalo, was a very large and successful one. The breed has shared in the general awakening of cattle interests, the membership has increased greatly, and the increase in registration and transfers has been larger than in past years. The Western Association has been consolidated with this one, making it now a very strong association. The finances show a balance on hand of \$8,101.79. The advanced Registry of the association is meeting with great favor. Fred. L. Houghton, Battleboro, Vt., is the secretary of the association.

SHEEP.

On Judging.

Mortimer Levering, secretary of the American Shropshire Association, read a very interesting paper on the above subject before a meeting of a New York Breeders' Association. The following is a portion of the address, which should attract the attention of every breeders' association, and all breeders interested in show-ring judging. He said:

"I should encourage the practice of every show or fair association publishing the names of the judges in the various classes in their prize-lists. I further recognize the great importance of every live stock association selecting a number of men whom they know are well posted in the standard of excellence or scale of points adapted by them, and give these names to the different fair superintendents from which to make selections. The qualifications essential to distinguish a man as an expert judge are numerous and are not an easy subject of analysis, yet he must necessarily possess them. The most important characteristics he must have are: An eye for symmetry and outlines;

a fine sense of touch; an education in animal anatomy to detect certain blemishes, defects and malformation; a complete knowledge of the points of excellence governing the variety under consideration; a mathematical genius for comparing sizes and weights; a cool head and resolute nerve; an unprejudiced mind; the courage of his convictions; unimpeachable integrity; a disposition to do what is honest and right, uninfluenced by fear of an irate exhibitor or loyalty to some friend. Taking up these in their order let us go a little into detail for a clearer understanding. It is conceded that the eye conveys to the mind of the observant, intelligent, and inquisitive beholder impressions and intuitions that at once confirm the real from the imitation, the genuine from the spurious, the gentle from the vicious, the effeminate from the masculine, the pure-bred from the ill-bred, high quality from coarseness, the poetry of motion and perfect action from the slouchy, shambling unfinished swaggering. The good judge must distinguish and recognize each of these quickly and retain a mental record of them."

Cheviot Sheep.

This breed of sheep had its origin on the hills of the same name that form the boundary between England and Scotland. They have, like other breeds, been considerably improved by careful selection and breeding and are a little less hardy than their ancestors on that account, but are capital rustlers. They suit any altitude between 1,000 and 2,000 feet high, and can stand a good deal of rain. They have got spread all over Scotland and the border counties of England. They flourish on grassy hills, the higher peaks and heathery land being more suitable for the black-faced breed.

The Cheviots are a compact, well-built variety, as the illustration on page 417 shows, and the rams have scurs, but not fully formed horns like most of the other mountain breeds. Besides their value as a pure breed capable of doing well on high wet hillsides, the Cheviots are much used for crossing with the Border Leicester and similar lowland breeds. Their "half-bred" lambs from pure Leicester sires feed much more rapidly than pure Cheviots.

The same families of Cheviot sheep have been bred on the same hillsides for centuries. The tenants may occasionally shift, but the flocks stay on and must be taken at a valuation, which is generally fixed a good deal higher than the ordinary market value. It is very rare indeed to find any hill farmer selling his ewe lambs, only the "wedder" lambs are sold off. Certain pastures are found to be more conducive to vigor than others and it is on the choicest of these pastures that the crack flocks are bred and reared. Earlier in the century Brydon, of Moodlaw, was noted for the quality of his rams, but of late the Elliott family on the Scotch side and Robsons on the English side of the Cheviots have held the lead for the quality of their breeding stock. The wool of the Cheviots is of medium length and fineness, the head being always covered with clean, hard white hair.

Some capital sheep of this breed were imported to Swift Current some years ago by the Lister Kaye Company. They are said to have done well there when used to cross with native breeds, but have not taken hold in the Western States. At Chatfield, in Southern Minnesota, a small imported flock was tried, but the climate proved too hot and dry for them. On the hills of the Eastern States they have been very successfully acclimatized, the soil and climate being fairly near what they were accustomed to in their original habitat.

SWINE.

Producing Export Bacon.

By G. E. Day, Professor of Agriculture,
Ontario Agricultural College, Guelph.
One of the Speakers at Institute
Meetings in Manitoba During June.

So much has been said and written of late regarding the bacon hog, that it requires some courage to again approach the subject. In spite of all that has been written, however, there still seems to be considerable haziness in the minds of many regarding what constitutes a bacon hog, and regarding the nature of our export trade in bacon.

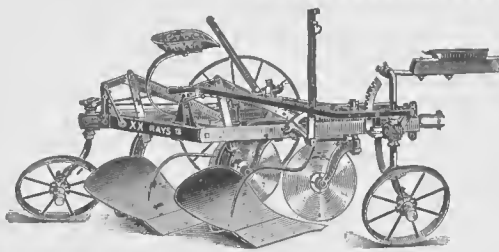
In the first place, it must be borne in mind that the ideal hog of the American packer is very different from that of the Canadian packer. This fact has been the cause of much confusion, and yet the explanation of this difference in the requirements of American and Canadian packers is very simple. It arises from the fact that, generally speaking, American packers supply a market which is quite different in its requirements from that supplied by the Canadian packer. In the English market, therefore, Canadian bacon of the best quality does not come into direct competition with the bulk of American bacon, but has to try conclusions with the bacon of Ireland and Denmark. Different sections of England call for sides of different weights, and the most desirable side in one section may be entirely unsaleable in another.

Canada's export staple in swine products is what is known as Wiltshire bacon, and London is the home of this trade. The market is limited and extremely fastidious. The light sides which may be very desirable on some markets, cannot be sold in London at any price. It therefore taxes the skill of the Canadian packer and feeder to retain the foothold already won in this market, and our only hope is to keep other competitors out by the superior quality of our products. That we have done fairly well in the past goes without saying, but it does not follow that we need not make any further efforts in the future, for other eyes are being directed towards our market, and we must fight for our lives if we are to obtain and retain supremacy. Some astute American writers have attributed the higher prices paid for Canadian bacon in England to the "pig-headed" prejudice of John Bull. It would be well for us if such were the case, but we have only to examine the prices of American and Canadian beef in England to have our dream of sentimental considerations rudely dispelled, and to teach us that however much John Bull may love us, he will not do violence to his stomach to oblige us.

For the production of best Wiltshire bacon, a particular weight and type of hog is required. The best weights are probably from 170 lbs. to 190 lbs., live weight, though these are not cast iron limits. The hog should be light in head, jowl, neck and shoulder. He should have medium width of back, great length and depth of side, good thickness through from side to side of belly, well developed ham, and medium bone. He should be active and sprightly, and possess general smoothness of body, showing no coarseness in any part. When cut down the back, the fat should be of uniform thickness over loin and shoulder, and firm in texture, while the belly should be thick. The carcass should show a good development of lean meat, with a fair amount of fat. While many hogs are made too fat, it is also true that many are sent to market before they are fat enough. Of course, it is impossible to have all hogs measure up to the standard described; but



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there is always a greater or less demand for lighter and for fatter bacon, and if a general effort were made to produce hogs suitable for Wiltshire bacon, there would still be enough light or fat hogs to supply the demands for the other classes of goods, without glutting the market, as is often the case at present.

It must also be remembered that in order to successfully hold a trade in any product, there must be not only uniformity of quality, but some degree of uniformity in quantity as well. If at any time we fail to furnish our share of Wiltshire bacon, we are giving some other country a good opportunity to step into the gap. In this country we have the climate, we have the foods, we have the hogs, and we have the brains, so that if we wish we can hold the English trade against all comers. It remains, therefore, for the Canadian feeder to choose whether he will make an effort to control the best English trade, or whether he will become a competitor of the American feeder. A glance at the market reports of the two countries should enable him to quickly make up his mind.

Let us now briefly notice some of the objections commonly raised against the bacon hog. One objection is that the packer wants the hog before it is heavy enough to satisfy the feeder. This objection is scarcely logical, for it has been very clearly demonstrated at various times that the cost of producing a pound of gain steadily increases as the hog grows heavier. This fact was also brought out in our experiments at the Agricultural College during the past summer. From frequent weighings of 36 hogs the following facts were brought out:—

While increasing in live weight from 54 lbs. to 82 lbs. hogs required 3.10 lbs. meal per 1 lb. gain.

While increasing in live weight from 82 lbs. to 115 lbs. hogs required 3.75 lbs. meal per 1 lb. gain.

While increasing in live weight from 115 lbs. to 148 lbs. hogs required 4.38 lbs. meal per 1 lb. gain.

While increasing in live weight from 148 lbs. to 170 lbs. hogs required 4.55 lbs. meal per 1 lb. gain.

Other experimenters have carried the hogs to much greater weights, and the amount of meal required for a pound of gain is almost invariably found to increase as the hogs become heavier.

But the greatest and most common objection to the bacon hog is that it costs more to produce it than it does to produce the fatter types. This claim has gone unchallenged for so long a time that it seems to be generally accepted as a just one, and yet, when we come to investigate, we are struck by the remarkable dearth of evidence in its support. In our latest experiments the group which evinced the most desirable characteristics from a packer's standpoint, was first out of six in point of economy of gain. The group scored second by the packer was fourth in economy of gain; while the group scored third by the packer was second in economy of gain. No doubt it requires more careful selection and skilful feeding to produce the bacon hog, but it has never been proved that the bacon hog necessarily requires more food to produce a pound of gain than is required, on the average, by other types.

The bacon hog, like the poet, is born, not made. Food can modify, but it cannot overcome individuality; and the foundation of our bacon industry rests upon judicious selection and mating of breeding stock. There is not time to discuss this question here, but it may be said in passing that the principle just enunciated is recognized by breeders of all other classes of stock, and applies with equal force to the case under consideration.

We must be very careful to remember that, because a hog belongs to a certain breed, it does not follow that it is necessarily a good or bad bacon hog. In our inves-

tigations we have found very good bacon hogs in practically all our leading breeds. In some cases, however, those which came nearest to the packer's standard were farthest from the standard of excellence for the breed. A standard of excellence which calls for a thick, arched neck, wide shoulder, and proportionately wide back, is as far from the packer's standard of excellence as it is possible to get. Hogs of this pattern are excellent animals for certain purposes, but, in themselves, they are entirely unsuitable for Wiltshire bacon.

But no breed is perfect. All have their weak, as well as their strong points. We must remember, too, that the great bulk of hogs sent to the factory is made up of grades and crosses, and not of pure bred hogs. This fact renders it possible to utilize probably all our larger breeds of swine. What is necessary, however, is that the breeder of market hogs should have a clear cut ideal in his mind as to what constitutes a bacon hog, and then he will be in a position to make the best use of the materials at his disposal, by intelligent selection and cross-breeding. What is the best cross is not known, and probably never will be known; but this much is certain, if a sow possesses undesirable qualities from a bacon standpoint, it is folly to mate her with a boar of a breed characterized by the same qualities, and hope to produce a bacon hog. Breeders of pure bred swine will ultimately promote the interests of their chosen breed by giving conscientious advice to the rank and file who produce the market hog, even though they occasionally lose a sale by so doing. Prejudice must be laid aside, merit must be recognized wherever it exists, and then there will be an end to much of the aimless work that is only too common throughout the country.

But, after obtaining a good type of hog, it is still possible to produce poor bacon. One of the great difficulties which our packers encounter is the soft condition of the fat of many hogs. One of our leading packing houses states that during the months of May, June, and a part of July of

1898, the number of soft sides ranged from 20 to 40 per cent. of the whole. This means that Canada placed upon the market that year a large quantity of inferior bacon; and while this bacon was not misrepresented, but sold purely upon its merits, at the same time it was Canadian bacon and tended to bring discredit upon Canadian bacon as a whole. It surely requires no argument to convince anyone that this means an ultimate loss to the producer, because when our packers meet with losses of this kind, their only remedy is to pay lower prices. It therefore becomes a matter of vital importance, not only to the packer, but more especially to the feeder, that less soft bacon should be put upon the market; and the problem of how to produce firm bacon should be carefully studied by every man who has a pig to sell. Like the man in the fable, we may kill the goose that lays the golden eggs. In producing firm bacon we are not studying the packer's interests, but we are merely taking heed to our own.

Soft bacon does not mean fat bacon. It means a soft condition of the fat, which develops while the bacon is in the salt, and reduces the value of the side according to its degree. An absolutely soft side is comparatively worthless, and between this condition and firmness there are all shades and degrees of tenderness. Sometimes softness is noticeable before the bacon goes into the salt, but often apparently firm sides come out of the salt decidedly tender or soft.

Various speculations have been indulged in regarding the cause of softness. It has been claimed that it is due to over-feeding and forcing hogs to heavy weights at an early age. Possibly this may be true where the forcing process has been carried to extremes, but in our experiments we have found more softness among unthrifty hogs that were too lean when slaughtered than among heavier and fatter hogs which had received the same food and treatment. It has been said that corn is responsible; but we have produced soft bacon without feeding a grain of corn, and by feeding wheat



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middlings at first, barley and shorts later, and peas, barley and shorts for six weeks at the close. We have been told that it is due to lack of exercise; yet we have produced perfectly firm bacon from hogs that had the least possible exercise from time of weaning to slaughtering. It has been freely stated that it is due to feeding hogs on clover; yet reports are to hand of hogs that were sent from a clover pasture to the factory and pronounced first-class. From this apparent mass of contradictions one thing appears fairly clear, softness is not due to any one cause, but may result from various causes, acting either singly or in conjunction.

As yet, investigations regarding the causes which may produce soft bacon, are merely in the initial stage. On some points we have a little light, on others we have none; but it is sometimes a useful employment to probe our own ignorance, and it is certainly a good thing to make the best possible use of the knowledge we possess. Then let us briefly look into some of the investigations up to date.

The most extensive and reliable experiments on record regarding the influence of food on the firmness of bacon, are those conducted at Copenhagen, in Denmark. Without going into details, it may be said that extensive experiments of the Copenhagen station go to show that the continual feeding of corn to young hogs tended to produce softer bacon than when barley was fed alone, and that the softness varied, more or less, according to the proportion of corn in the ration, or the length of time during which corn was fed. This evidence from such a source looks to be fairly conclusive against corn-feeding in the case of young animals, but whether the evil influence of corn can be overcome by certain methods of feeding, remains to be investigated. The Danish investigators also found that wheat bran and rye shorts produced similar bad effects, so that corn was not the only undesirable food according to their results.

It has been already intimated that experiments are in progress at our Agricultural College, in connection with the influences which affect the firmness of bacon, a brief account of which will be given. Previous to this year's work, it had been noted that those hogs which had been fed in pens from the time they were about two months old, were more seriously faulted for tenderness of fat, than similar hogs fed in outside lots, where they had plenty of exercise. It was also noticed that hogs which had been allowed abundance of exercise until they reached about 100 pounds live weight, and were then put in small pens and fattened rapidly, were pronounced firm. These examinations, however, were made before the bacon was put into the salt, and are therefore not altogether reliable. During last year, hogs were fed in several different ways, and the bacon was examined after it came out of the salt, so that there could be no mistake about its firmness. The results may be summarized as follows:

Thirty-six pure bred hogs were purchased when from seven to nine weeks old. They were divided into three groups, each group containing two hogs of each of six different breeds. One group was fed in pens with small outside yards. From July 4th to August 19th the ration was wheat middlings; from August 19th to Sept. 12th it was equal parts by weight of barley and shorts; and from Sept. 12th to Oct. 24th it was equal parts by weight of peas, barley, and shorts. When the carcasses came out of the salt the condition was very unsatisfactory. Only four out of the twelve were positively firm, one was only slightly tender, and the remaining seven ranged from decidedly tender to soft.

Another group was kept in the same building in exactly similar pens and fed

exactly the same meal ration; but about two pounds of whey were fed with each pound of meal. When these carcasses came out of the salt, only one showed any sign of tenderness, and the remaining eleven were first class as regards firmness. Such a striking difference cannot be accounted for on any other basis than that the whey was responsible for the superiority of the second group.

The remaining group was allowed the run of a half-acre lot, and fed exactly the same ration as the first group described. This group came out of the salt in decidedly better condition than the first group, but not equal to the group which received whey.

By far the greater amount of tenderness was found among the lighter and leaner hogs, and since several unthrifty hogs had been purposely put into the third group, this group was placed at a disadvantage. The hogs in the third group, which were heavy and fat enough for Wiltshire bacon, were all firm but one.

In addition to the pure bred hogs, 12 grade hogs were purchased. They were strong, fleshy stores from the stubble fields, and averaged about 109 pounds, live weight. They were put on full feed in pens for six weeks before slaughtering. Part were fed corn meal alone, part were fed a two-thirds ration of corn-meal with all the rape they would eat, and part were fed equal parts by weight of peas, barley, and shorts. All these hogs produced firm bacon except one in the peas, barley and shorts group, which was somewhat tender. There seems to be little danger, therefore, of spoiling hogs of this class with either corn or rape.

Twelve more grade hogs were confined in pens from time of weaning to slaughtering. They were fed skim milk and wheat middlings (except during about three weeks, when they were fed skim milk with barley and shorts) until they reached an average live weight of about 100 lbs. The skim milk was then discontinued, and during the next six weeks some of them were fed corn meal, others were fed equal parts by weight of peas, barley, and shorts, and the remainder were fed a two-thirds ration of the peas, barley and shorts mixture, together with all the rape they would eat. All of these hogs produced firm bacon, except one in the group receiving the peas, barley and shorts with rape. Now, practically the only difference between the feeding and treatment of these hogs until they reached 100 lbs., and the group of pure bred hogs which gave such very bad results, consisted in feeding the grades skim milk with their meal ration. It would, therefore, appear that skim milk has a very beneficial influence on the firmness of bacon.

Gathering together the different points, we may draw the following general conclusions, so far as the work has gone:

1. Though, according to Danish experiments, corn tends to produce softness of bacon when fed to animals in the early stages of growth, it apparently produces no evil results when used for finishing hogs that have had plenty of exercise until they reach about 100 lbs. live weight.
2. Neither does corn appear to have any bad effects when used for finishing hogs that have had no exercise, but have been fed skim milk with a mixed grain ration until they reach 100 lbs. live weight.
3. What has been said of corn may also apply to rape, when a two-thirds grain ration is fed with it.
4. Soft bacon can be produced without feeding corn or clover.
5. Hogs confined in pens and fed on wheat middlings during their early growth, and peas, barley and shorts for the finishing period, have a marked tendency to be soft.
6. Hogs given plenty of exercise and fed as just described, produce firmer bacon than those confined in pens.

7. The evil effects arising from lack of exercise can be overcome by the judicious use of whey or skim milk. The amount of whey recommended, is from two to two and one-half pounds of whey to each pound of meal.

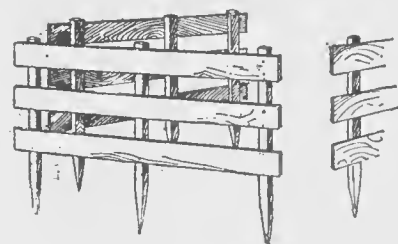
9. Unthrifty hogs are more likely to produce soft bacon than growthy, well fed hogs.

When we reflect that Denmark, which produces such high-grade bacon, is essentially a dairying country, our results with skim milk and whey assume increased interest.

As stated before, these investigations are merely in their initial stage, and the results obtained are being followed up by a study of the influence of corn and other foods upon the very young animal. It is to be hoped that feeders of swine will awake to the importance of this matter; and the object of this paper is not so much to impart information regarding results obtained, as to stimulate interest in one of our greatest agricultural industries. Let us not forget that the success of the swine breeding industry, is inseparably connected with the quality of the swine products which we place upon the market. We are at the mercy of a despotic ruler, known as the "consumer," and for his favor we must humbly sue.

A Movable Fence for Pigs.

Farmers are doing more with pigs and as pasturing them is the cheapest way of growing pork the following illustration of a portable fence, taken from an exchange, will be useful. It is a kind of a panel fence with which pens of various size can be made and when the pasture is



eaten down the panels can be moved to enclose a fresh piece of ground. The posts extend 20 inches below the lowest board and are sharpened. Hooks and staples can be used if desired to fasten the panels together at the corners. Such a fence can be made of poles as well as boards.

A Pig in the Witness Box.

A rather novel case was heard by M. McIntyre, J.P., on Monday last at the police barracks, in which the ownership of a pig of very tender age was the subject of dispute. The pig and his mother were the chief witnesses in the case, and though their evidence was not under oath it was considered the best produced by either party, and on its strength a certain young man in town was fined \$5.00 and cost of conversion of the little porker. The little fellow, when put in the pen of hogs from whence it was charged he had been taken, hunted out his mother and his place at her side with an instinct quite interesting to behold, and which contradicted in a most convincing manner the story of the young man.—Edmonton Plaindealer.

Labor Saving.—Uncle: "Well, Tommy, my little man, what are you going to do when you grow up?"

Tommy: "I'm going to grow a beard."

Uncle: "What for?"

Tommy: "So's I won't have so much face to wash."

A Tale of a Pig.

There is an eminently progressive farmer not a hundred miles west of Winnipeg, against whom this story is told. He invested in a pure bred Berkshire, supplied by one of the leading breeders of the province, which in due time was transferred from the expressman's van to the buyer's wagon. Everything was O. K., and when their destination was reached, the whole family turned out to inspect the interesting stranger. But the crate was empty and that pig was never again set eyes on by its much chagrined owner. He hunted round a good deal, but all in vain, and the record of what that well-bred sire might, could

pork before any clue to his identity turned up. Just what breed our progressive friend now favors we do not know, but though a pleasant talker on the institute platform, it has never been our good fortune to hear him discourse on the ideal farmer's pig.

The Worth of Experiment Stations.

One of the most diverting specimens of criticism we have read for some time is that made by a western oracle on the recent spat between Director Saunders and Professor Robertson. Speaking of the experimental farms, this critic remarks:—

is conducted are fanciful rather than necessary. Taking everything into consideration, it may well be doubted whether the results are worth a tenth part of what it costs to obtain them."

How little good some folks can see in anything when they get a certain pair of "goggles" on.

The sheep tick is rather remarkable in that it does not lay true eggs, but brings forth its young as a pupae, enclosed in a hard shining membrane, causing them to look like seeds. The number of young which a female will produce in a lifetime is small. Some authorities claim only one or two are produced, while others



Views on the Sheep Ranch of the Canadian Land and Ranching Co., Swift Current, Assa.

and should have done in his goahead owner's hands was lost to the community.

The pig had in some way best known to itself slid out of the crate in the dark of the evening and found its way into a herd a short way off owned by a farmer who is not struck on new fangled stock and did not bother to advertise the advent of his visitor. Time went on, nobody came round looking for stray pigs, and in due time that black hog became the sire of a litter or two, in which their owner did not see any more than in the hundreds he had bred before on the same farm in his own primitive style. So the pure bred Berkshire that should have won high honors at each of the local shows where the man who paid for him cuts no second figure, went with very short shrift into the old-timer's pork barrel and had gone the way of all

"As billets, they are—like bishoprics—eminently useful, but the main loss from their being done away with would be to the present incumbents. The people who would miss them least are the farmers, for whose benefit they were established, and whose interest is certainly debited with the expenditure. \$84,000 is the sum these farms are expected to cost this year, and it is not too much to question whether, for the little benefit that accrues to the farmer from the experiments, it is worth his while to remain saddled with the burden of the bonus. Instead of being practical educational agents, which they ought to, and might be, their efforts seem to be all directed to proving that they haven't been doing nothing. Their methods are not practicable to the average hard-head of a farmer, and the lines on which the experimenting

place the number as high as eight or nine. It is certain, however, that they produce only one at a time. The pupae ease adheres to the wool. The length of time the pupa remains in the case is not fully determined, but it is supposed to be from seventeen to twenty-five days. When the time arrives for the pupa to emerge from its case the end breaks across and the young tick comes out ready for active work. The tick remains close to the body, but does not attach itself at one time longer than is necessary to fill up with blood.

Another breed of pigs is having a society and herd book started in England. The Large Black pig has been kept for many years distinct from its smaller and plumper rival, the Berkshire.



Answers to Questions.

By an Experienced Veterinarian.

As it is desired to make this column as interesting and valuable as possible to subscribers, advice is given in it free in answer to questions on veterinary matters. Enquiries must in all cases be accompanied by the name and address of the subscriber, but the name will not be published if so desired. Free answers are only given in our columns. Persons requiring answers sent them privately by mail must enclose a fee of \$1.50. All enquiries must be plainly written, and symptoms clearly but briefly set forth.

A Good Cattle Book.

H. F., Maple Creek, Assa.: "Would you please give me the name and price of a good veterinary treatise on cattle—one written for the farmer and rancher rather than for the profession. Where could I secure same?"

Answer.—The special report on diseases of cattle, published by the U. S. Department of Agriculture, is the best book of the kind you want. If not out of print it can be obtained by sending 65c. to the Superintendent of Documents, Union Building, Washington, D.C.

Serous Abscess.

Subscriber, Katepwe, Assa.: "I have a young mare that has a large swelling under her breast about four or five inches long. It feels as if there was water in it. She is improving in condition and eats well. Another mare has now developed the same kind of a lump. What treatment would you recommend?"

Answer.—Lance the swelling at the lowest point, making a good large incision—after the fluid has drained out inject every day until healed with a solution of creolin and water 1 to 40.

Rheumatism.

J. P. Howick, Pipestone, Man.: "Kindly tell me what is the matter with my mare. She is five years old and had lung fever very bad in April. She got over it but it appeared to settle in her legs. She has a swelling on each front leg just above the fetlock that is very sore. Her hind legs are very stiff and she is not able to do anything, though hearty and in good condition. What can I do for her?"

Answer.—The swellings in the legs are caused by rheumatism. The soreness can be removed by a fly blister, but the swelling may remain some time. Don't blister more than two legs at once.

Springhalt.

J. M. M., Lumsden, Assa.: "Will over feeding cause springhalt? What is the cause of it, and what is the best treatment for it? Is it hereditary and would you advise using a stallion first class in all other respects, but troubled with springhalt?"

Answer.—The cause of springhalt is still in dispute, some claiming it is a nervous affection resembling St. Vitus dance, others think it arises from a defect in the muscles of the thigh. It cannot be produced by over feeding. It is not looked upon as hereditary and should not disqualify stallion otherwise sound.

Nasal Catarrh.

J. R., Arizona, Man.: "I have a young pure bred bull, one year old; he caught on the brain when bringing him home

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Easy Running, and a
Perfect Working
Machine.



All the Good Features that
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The Widest Elevator that is made.
Greater space for holding the grain back of the needle than any other Elevator provides.
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and since then he runs a little at the nose and breathes very heavy, but eats hearty and seems well, only for the noise in his breathing. Will you kindly tell me what to do for him?"

Answer.—You don't say what your bull caught on the brain, and I am at a loss to know whether it was a kick from a horse, a blow from a fork handle, or a bad cold. However, as the symptoms point to cold, as the cause of the trouble, I will assume that that is what you mean. Give him a tablespoonful of fluid extract of Hydrastis Canadensis twice a day. Scalded bran mash given piping hot will do good by the inhalation of steam from it.

Thrombosis.

J. C., Hamiota, Man.: "I have a horse that is full grown and he got lame all at once in his right hind leg. He appeared to be in great pain, sweat very heavily in going a quarter of a mile; could go no farther; no swelling. Sent for a V.S. and had him examined. He said that it was either a cramp of the muscles or a clot of blood in the main artery on the inside of the leg, would be better when standing. Never saw anything wrong with him before. Please give your opinion of the trouble."

Answer.—The symptoms point to a case of thrombosis, or clot obstructing the flow of blood in the large vessels of the leg, but I would not hazard an opinion without further knowledge of the case. You do not say how long the attack lasted or mention other facts essential to the case. Thrombosis is accompanied by unnatural coldness of the limb affected. Was this symptom present?

Worms in the Scrotum.

Subscriber, Belcourt, Man.: "While castrating a colt I found a worm two and one half inches long. Kindly tell me how it got there, or what is the cause of it being there."

Answer.—Worms are not unfrequently discovered in the envelopes of the testicle when castrating. They belong to a species of worm (filaria papillosa) which infests the peritoneal cavity of horses. They may be often seen among the intestines when the abdomen is opened during a post-mortem examination. They make their way occasionally down the inguinal canal beside the spermatic cord to the scrotum

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Lump Jaw is an infectious disease. One case may infect a whole herd, or distribute the germs of disease over your pastures. Rely on

Fleming's Lump Jaw Cure

to stamp out the pest as soon as it appears. This remedy originated in Prince Albert, N.W.T. It has cured thousands of cases, and is endorsed by the leading ranchers and shippers of Canada.

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The success of FLEMING'S LUMP JAW CURE has led to numerous imitations. Do not be imposed on by them. The labels and circulars can be imitated, but the Cures cannot. Get the genuine, and be sure of results. Money promptly refunded if the remedy ever fails.

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All kinds of Pumps repaired. Office and Factory, Ninth St., opposite Northern Pacific Station.

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Write for Prices.

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When writing mention The Farmer.

INDIAN HEAD, Oct. 20th, 1898.
WESTERN VETERINARY CO.,
WINNIPEG, MAN.

Dear Sirs,—After two years' experience with Dr. Warnock's **ULCERKURE** in healing flesh wounds, I am convinced it is the most successful healing compound ever discovered. Its wonderful curative properties was recently shown on the worst barb-wire cut I ever saw. One of my colts a short time ago was cut on the leg just below the shoulder; the wound was eight inches long and right to the bone. **ULCERKURE** healed it completely, without leaving a scar, in 14 days. In my estimation, no stock owner or farmer can afford to be without it.

(Signed) WM. STEVENS.

ULCERKURE has well been named the

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A new Chemical Compound discovered by Dr. Warnock, Member of Royal College of Veterinary Surgeons, England, and Fellow of the Glasgow Veterinary Medical Society.

ULCERKURE

will quickly heal all manner of Wounds and Sores, in both human and animal flesh, no matter how long standing. It is the greatest discovery known for

Barb-Wire Cuts.

A Cure guaranteed in every case.

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Western Veterinary Co. Winnipeg, Man.
CANADA.

and remain there unsuspected until the operation of castration reveals their presence. The horse seems able to tolerate the presence of these worms when they are not too numerous, but in large numbers they irritate the peritoneum (the covering of the bowels and lining of the abdomen), and cause an increase in the amount of fluid present, and may even produce a condition of dropsy. Their situation renders it impossible to dislodge or destroy them in any way.

Stoppage in Teat.

K., Treherne, Man.: "A cow just calved had her udder at the two hind teats caked and I could get no milk from them. I tried the calf, but without effect. I inserted a knitting-needle; there seemed to be a stoppage at the top of the teat. The teats would fill and on drawing off the milk I had to wait for them to fill again before I could get any more, as they filled so slowly. I had to use the needle every time I tried to milk her. They have since refused to give any milk at all, and the hardness of the udder has disappeared. I bathed the udder with hot water and salt on advice from a neighbor. On feeling the teats it seems as if there is a hard lump at the top of the teat, just as if it were a plug, which I take to be some growth. The cow is young, last year being her first season. She is a good milker, but she was troubled the whole summer with bloody milk from one hind teat. Can she be cured? Would keeping her over be risky for the other teats? or would it be best to beef her in the fall, as I propose doing? She is a Holstein, therefore cannot readily sell her with her hide on, but probably can if I take it off."

Answer.—The teat should have been kept open by the daily use of a milking tube. Should that fail the inner passage would need to be split by a concealed

bistoury, or "teat knife." As the hardness has disappeared she will probably have full use of udder at next calving, when the teat can be cured by above methods.

Cattle Poisoned by Injurious Plants.

Henry Roberts, Churchbridge, Assa.: "A settler, five miles west of here, has had four head of cattle taken suddenly as if going mad. They throw their heads up in the air and bellow, then go down on their knees and walk with their hind legs, pushing their heads along the ground. If they lie down they jump up again suddenly and keep kicking their hind feet up to the body. He has put 1 lb. Epsom salts down them and a pint of linseed oil. As soon as the medicine begins to act they seem to get a little easier, and as they begin to recover, blisters come out all along the back and sides. Along the neck, from horns, right down to root of tail the skin cracks and he has to keep oiling it to keep the places from bleeding. Their eyes sink in their heads, the hair on the hips and thighs comes off and the cattle quickly sink to skeletons. While bad at the first they cannot bear to be out in the sun, but either rush into the stable or bluff. The one taken to-day was chewing her cud against the smudge, when all at once she threw up her head, and, as he words it, 'just went crazy.' She would run right over you if you did not get out of the way. The trouble seems to lie principally in the head at the start, with pain in bowels, shown by kicking hind feet up to belly. Last year another settler in the same neighborhood had two milch cows act the same. Their skins cracked and blistered just the same when recovering. They think it is some herb they get in the bluffs. Can you give any information as to what is the complaint, and what remedies to use?"

Answer.—The cattle are undoubtedly poisoned by some noxious plant, but just what it is I am unable to say from the data given. The avoidance of light and symptoms of brain disturbance, "going mad," point to a plant of the order Solanacea, of which Belladonna, "Deadly Nightshade," is a good example, while the skin irritation is similar to that produced by *Rhus toxicodendrum*, or "poison ivy." It must be remembered that in spring months the young succulent plants lack the distinctive odor and flavor of more mature growth, which prevent cattle from eating poisonous herbs. In spring cattle should be prevented from grazing in scrub where such plants grow, and confined to the open prairie. The treatment adopted was quite right. Empty the bowels as soon as possible, and soothe the inflamed skin with oil or vaseline.

Additional answers to veterinary questions will be found under "Correspondence."

Weyburn.

Weyburn is a recently settled district on the Soo line southwest of Regina, in which a surprising change has been made within the last twelve months. This is a specially favorable season for breaking and from 50 to 100 acres is the quantity done by each settler. One of the most pleasing features of the opening up of this district is that a large percentage of the pioneer settlers have had a lengthy experience in farming in other parts of the Territories, and the rest are practical Ontario farmers. All are well-to-do and have brought with them good farm teams and implements. The town itself is being rapidly improved and there are already three implement agencies established.

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WE CARRY A LARGE STOCK OF CHURNS, BUTTER WORKERS, BOXES, TUBS, SALT, RENNET, COLORING, BANDAGE, ETC., AND ARE SOLE AGENTS FOR RELIABLE MAKES OF CASOLINE ENGINES AND TREAD POWERS, DISBROW COMBINED CHURNS AND BUTTER WORKERS.

Write us for particulars—

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SHOPS: MONTREAL AND OURSLEY, ENG.

St. Boniface, Man., April 15th, 1899.

MESSRS. R. A. LISTER & CO., Ltd.

Dear Sirs,—I have much pleasure in stating that the No. 4 "Melotte" Cream Separator, which I have used since May, 1898, has given good satisfaction.

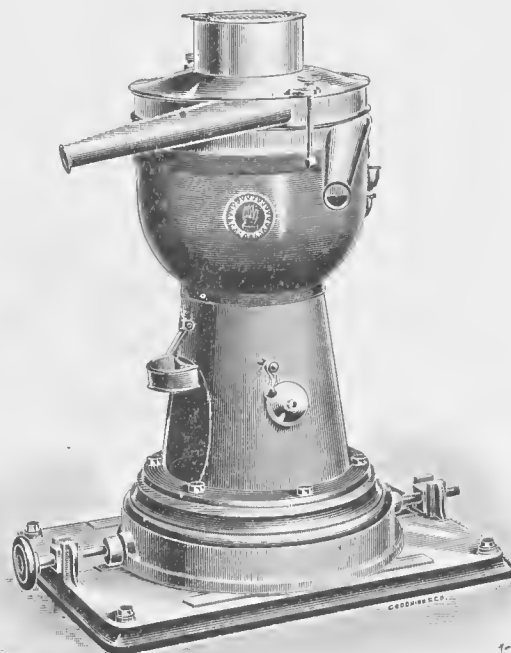
We milk 30 cows, and before we got the "Melotte" we had a No. 8 "Alexandra," which we had used for 5 years. This machine gave good satisfaction, cost almost nothing for repairs, and suited us very well while we milked about 15 to 20 cows, but the time required to separate the milk of 30 cows was from one to one and a-half hours, whereas with the "Melotte" the time required is less than one-half that time, and no more power is required to run the new machine. A lad of 15 can easily turn it. We had the skim milk tested several times and the average per cent. of fat left in the skim milk was about .07. The machine has cost us nothing for repairs, the only expense being for oil.

I send my cream to S. M. Barre's Factory in Winnipeg and found the "Melotte" was just the machine to suit my purpose.

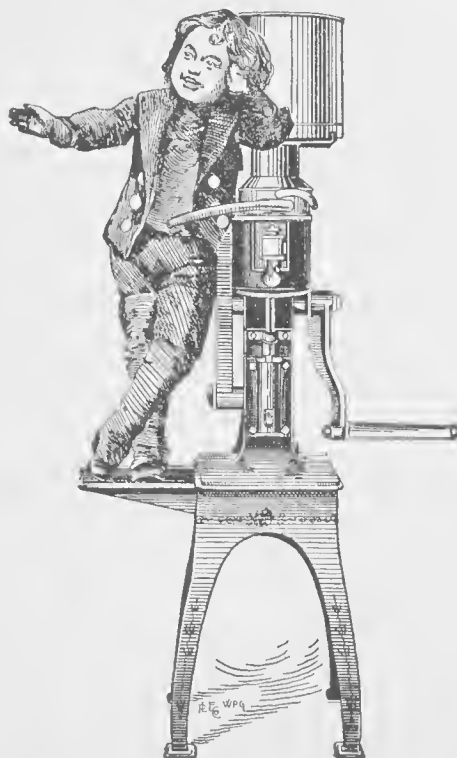
The first cost of the "Melotte" somewhat staggered me, but I am well satisfied now with the investment.

Yours truly,

J. B. LAVOIE.



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They are the best constructed machines in the market.

They are the easiest operated machines and the least liable to get out of order.

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Cost and Profit in Milk Production.

The State of Minnesota has within the last two years made great advances both in the amount and quality of her dairy production. This is partly, though not wholly, due to the care and time devoted to the study and practical work of dairying in her state farm school. But Prof Haecker, who has charge of that department, says that there is still a great deal to be learned and still more improvement needed in the way of turning to account by the dairy section of the community what is already known to its more advanced members. In an address recently delivered before the State Agricultural Society, he gives his views on the situation. All of his address is not equally applicable to our conditions here, but he brings forward many points of great interest. He says:

It has fallen to my lot to carry on a series of experiments covering some half dozen years with a view of ascertaining the cost of milk and butter production with cows of different breeds and types. In summing up the result of this work I am forced to the conclusion that the subject of rational feeding is, for the time being, of greater importance than most people imagine. The value of suitable type is fairly well understood and admittedly of greater importance than breed, but feed of the right kind is even still more important.

"I find that by proper feeding under present conditions almost any kind of a cow will return a good profit in the dairy, and that the average cow in Minnesota is returning in dairy products barely equal

turn for food consumed; but our dairy farmers, unfortunately, have not many of that kind, and to change them will require years of careful selection and breeding. It is, therefore, of primary importance that farmers first learn to make the best of what they have.

"My information, derived from reports received from a great many creameries within the past few years, is that the cows contributing to those factories could by a different style of feeding be made much

and yet getting very little more than suffices to keep up the natural waste of her bodily system. An animal weighing 1,000 lbs., kept comfortably housed and quiet, needs about seven-tenths of a pound of protein daily to keep up her natural waste, and have very little more in her ordinary feed out of which to make good milk. Suppose she gets a whole pound daily of protein, that leaves just enough to make half a pound of butter daily. It is only during the few months of good summer



Creamery at Qu'Appelle Station, Assa.

more profitable than they now are. Their unsatisfactory production, I think, very largely due to improper feeding and care. I estimate that with from \$5 to \$10 worth more of proper food, comfortable housing and regularity in feeding and milking, the enormous loss of profit these returns indicate could be to a great extent avoided. My information is mainly based on the milk production contributed to creameries, but there are 300,000 more cows in the state to which my remarks

pasture that such cows get the chance of doing their best and even then may have to make up arrears of vitality due to improper winter feeding.

"Great efforts have been made to introduce improved stock among our farmers; so far these efforts have received but little encouragement on their part. Unless they understand the principles of feeding and have acquired the habit of taking proper care of improved strains of live stock, there is little use in placing such in their charge, even as a gift. They must first learn how to properly feed and care for common stock before they can expect to do justice to a full blood, which universally requires more skilful handling than does the common animal. Improved stock is made such by skilful breeding and feeding, and if the best representative of its kind is placed in charge of a person lacking knowledge and skill in feeding and breeding, reversion quickly follows and the farmer concludes that after all common stock is best adapted for him.

"The first step toward substantial improvements in feeding is to show the enormous and unnecessary losses that our cow owners are annually incurring for want of knowledge on this subject, which will create a desire to learn improved methods. This should be followed by furnishing literature containing tables giving the comparative value of feed stuffs, their chemical composition, and average content of digestible matter, the uses that are made of the different nutrients, with plain instructions for compounding balanced rations, and best methods of feeding and caring for the herd. This information is needed, not only by every creamery patron but by every farmer in the state who owns live stock.

"The real feeding value of our different kinds of food is little understood by the average farmer. The market prices for the different grains and mill products are based upon supply and demand, and not so much upon their feeding value. Farmers, as a general rule, know that bran is good food for dairy cows; they also know that corn, oats, and barley are good, but they do not seem to understand why a mixture of such excellent feed as



The Indian Head Hunt Club.

to the market price of the feed simply because of a lack of understanding of how to feed; and when we consider how many common cows there are in the state whose product might be doubled by better methods, we can readily understand how much more important it is that the kind we have be properly fed than to point out by experimental demonstration what we might realize by feeding the kind we haven't got, but should get. It has been clearly demonstrated that cows bred specially for the dairy make a much larger re-

would equally apply. I am forced to the conclusion that for lack of proper knowledge among feeders of the science of feeding they are heavy losers and that under present conditions the feeding problem is the most important one we have to deal with.

"The error that our farmers are making is not so much in underfeeding as it is in not providing their cattle with the right kind of feed. A cow may get all she can eat of an unsatisfactory ration and be to external appearance well fed,

corn, oats, barley, will not produce as good results as can be secured by feeding bran and oil meal in connection with them. The reason is plain when the needs of the animal system and the composition of the different kinds of feed are known.

"In feed stuffs there are three groups of substances which must be considered in formulating a ration to secure best results. These are known as protein, carbohydrates and fat.

"Protein is the name of a group of materials containing nitrogen. On account of the presence of nitrogen this group is sometimes called the nitrogenous group, in opposition to the constituents of feeding stuffs, the carbohydrates, fat and ash, which are non-nitrogenous. The function of protein is to furnish materials for the formation of lean flesh, tendons, nerves, hair, horns, wool, and of the casein and albumen of milk. For the formation of these materials protein is absolutely indispensable. It is important to remember that no substance free from nitrogen can be converted into protein or be used as a substitute for protein. It is, therefore, necessary for an animal to receive a certain amount of protein in order to maintain existence, grow or produce milk.

"Carbohydrates are made up of certain substances, usually divided into two groups—nitrogen-free extract, including starch, sugar, gums, etc., and crude fibre. Coarse fodders contain large amounts of crude fibre, while most of the concentrates contain little fibre, but are rich in starch and sugar. Carbohydrates are either stored up in the body as fat or are burned in the system to produce heat and energy.

"Fat, or the material dissolved from a feeding stuff by ether, and for this reason the group is often designated as ether extract, includes the fats and the green coloring matter of plants. The fat of food is either stored up in the body or burned to furnish heat and energy. As a heat producer a pound of fat is worth as much as 2.25 pounds of carbohydrates. When fat has been multiplied by this factor, the result is called fat equivalent.

"A cow, or in fact any mature animal, can use only from five to seven pounds of digestible carbohydrates and fat equivalent to one of protein. If we feed more carbonaceous matter without increasing the protein there will be an abnormal shrinkage in the flow of milk, because the increase will cause the animal to commence laying on fat. If the ratio of protein to carbohydrates and fat equivalent is narrowed down the animal will need more heat than the fat and carbohydrates can supply, and it will consume some of the protein to make up the deficiency. It follows, therefore, that for the best results the two groups of nutrients—protein and carbohydrates—should be fed nearly in the proportions above stated.

"All the nutrients other than protein, needed by our farm animals, are found in all our ordinary farm food stuffs in great abundance. In good prairie hay, straw and similar rough fodders, and in all our grains, there is more digestible carbohydrates than cattle can make use of. It is therefore necessary in compounding rations to resort to some mill product, bran preferred, containing a high percentage of protein to make good the shortage in the other foods. Hay has more protein than corn fodders and is most suitable for mixing with bran. If corn fodder is used, linseed meal should be used instead of bran. Chemical analysis proves this.

"A ton of bran, costing, say \$10, contains 238 pounds water, 1258 pounds carbohydrates, 80 lbs. fat, 116 lbs. ash, 58 lbs. indigestible protein, and 250 lbs. digestible protein. It is mainly for that 250 lbs. of digestible protein that we want the bran. Linseed oil meal is a still more richly concentrated source of protein and worth from \$20 to \$24 per ton

GEORGE E. PEOPLES.

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BAKERFIELD, CAL., April 2nd, 1899.

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Dear Sir,—I wish to say in regard to the 2,500 lb. per hour Sharples Tubular Separator, put in for us 1st January, that it is giving entire satisfaction. After having used it for three months, I must say that I am more than pleased with it. Having used nearly all the leading Separators, I formerly believed that there was none that could come up to the De Laval Alpha. But after using the **Wonderful Tubular**, and giving it a thorough trial under almost all conditions, I think it has no equal. It is a great saver of oil and fuel, and produces a smoother and more churnable cream than any Separator I have ever before seen.

To say that the patrons of our creamery are pleased with the Tubular but lightly expresses it.

GEORGE E. PEOPLES,
Manager Bakerfield Creamery.



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SUPERB, SMOOTH CREAM
GREATEST YIELD OF BUTTER

No Rubber Rings. No Metal Bearings.
No Spindles. No Complication. No Danger.
A Hollow Bowl. A Simple Bowl!
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All these and many other advantages.

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DAIRY FOR SALE.

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Maple Creek, Assa.

COLD STORAGE BUILDERS.

For Creameries, Dairymen and Butchers. References—C. C. McDonald, Dairy Inspector, and Ald. T. Cowan, Winnipeg. Prices given on application.

G. T. LAIRD, 214 James St., Winnipeg.

When writing mention The Farmer.

when bran is \$10. At these values I can only afford to pay 21 cents a bushel for corn, 12c. for oats and 18c. for barley."

Prof. Haecker contends that by analysis shorts are 50 lbs. per ton poorer in protein than bran and therefore \$2 less value than bran. The Winnipeg dairymen see it the other way and pay \$2 more for the shorts. On the same principle he makes a ton of prairie hay worth less than \$3 and a ton of dry clover hay worth \$12.

"In view of the discrepancies," continues Professor Haecker, "between ruling market prices and the actual money value of feeding stuffs, we have for several years disregarded prices of feed and have based our calculations on the cost of digestible protein and have fed it in whatever palatable form we found it the cheapest. It is by this method and partially the decrease in price of protein that we have reduced the cost of producing a lb. of butter from 10.6 cents in 1893 to 5.4 cents in 1897.

"The profit in dairying, as in any other business, depends upon the margin between the product and the cost of production, and it is, therefore, of primary importance to provide feed stuffs at the least cost, and when grain is relatively high it may become necessary to discard our farm grains entirely, sell them, and buy mill feed. This winter we are feeding ten parts of bran to two parts of oil meal, and use fodder corn exclusively for roughage. The standard ration is ten parts of the bran and oil meal mixture,

amount of nutrients in the right proportion, and in palatable form.

"We get as much out of a pound of protein in bran as we get in any other grain. They give just a trifle more milk when receiving some succulent food, such as roots and ensilage, but practically the same amount of butter of other milk solids. We select the cheapest foods and so mix them that the cow gets one pound of digestible protein to six of carbohydrates and fat equivalent if we should feed a wider ration, that is, one that contains more carbohydrates and fat equivalent than the amount above stated, she would gradually lay on fat, shrink in milk and failure to breed would likely soon follow. But when the above mentioned nutritive ratio is maintained no such difficulties are encountered.

"Our records show that changes in feed during the winter are objectionable, as changes always cause shrinkage in milk. A more uniform flow is maintained by feeding the same ratio all winter, if possible. If it becomes necessary to make a change, it should be very gradual, so the system can adjust itself to the variation in bulk, and the muscular action required by the stomach to digest that particular ration.

"A daily outing should be given to the herd in a covered run during cold weather and in the open yard during pleasant days. Sunlight and fresh air are indispensable with a dairy cow, but she should not be compelled to remain outside if she

sent by the dairy division of the United States Department of Agriculture of some thirty packages of foreign butter. Through the courtesy of Mr. Pearson, who had charge of this butter, the writer was permitted to take a sample of each package. It was while engaged in this work that he noticed the unusual dryness of the foreign butter. There were almost no drops of brine nor any appearance of moisture on the surface of it. The American creamery butter, however, was covered with drops of brine. This peculiarity naturally leads to the inference that American butter holds more water than foreign butter, and such opinions have been expressed in various papers.

Chemical analyses have shown, however, that our American butter generally contains a smaller percentage of water than is found in foreign butter. This is illustrated by the following figures showing the average of many analyses of butter:

	No. of Analyses.	Water per cent.	Salt per cent.
World's Fair	350	11.57	2.78
Wisconsin creamery.	52	12.77	2.87
Danish, butter, 1897*2016		13.79	

*Molk. Zeitung 12, No. 33.

These results seem to contradict the impression one gets by seeing the two kinds of butter. The apparent difference in their water content was so striking that on returning from the convention the writer started an investigation at the dairy school creamery to discover if pos-



Farm Buildings of Jas. Armstrong, on the Portage Plains.

to fifteen parts in weight of the cut fodder corn. The cows are fed all they will eat up clean, but the proportion between the roughage and the grain is always maintained—once and a half as much roughage as grain. The reason cows are fed all they will eat is because we must first provide the food of maintenance and the more they will eat over and above this, the more they will have available for converting into milk and meat. Each cow is fed twice a day; half the grain feed and roughage in the morning, and half in the evening. That generous feeding pays is clearly illustrated in our record for the five years ending December 30, 1897. During the years 1893, 1895, 1896 and 1897 cows were fed all they would take, while during the year 1894 they were fed light.

	Milk.	Butter.	Cost of 1 lb. Butter.
1893	6,407	364	10.6 cents.
1894	4,900	271	10.9 cents.
1895	7,418	352	8.0 cents.
1896	7,454	349	6.3 cents.
1897	6,962	351	5.4 cents.

"These are averages of the entire herd and show that during the four years when receiving all they would eat up clean they averaged 354 pounds of butter each, while the average yield for the year 1894, when on comparatively light feed, was only 271 pounds. The cost of production was also the greatest that year. The kind of feed has little, if anything, to do with the yield, so long as they get the required

is uncomfortable, as comfort and contentment reduce the amount of food required for bodily maintenance and increase the amount available for dairy products.

"Strict uniformity in feeding, regularity in feeding and milking, are just as essential as providing the proper kind of food. Salt and water should be accessible at all times, and the latter should not be at a lower temperature than 60 deg. Fahrenheit, because if the water is colder they will not drink until they become exceedingly thirsty, and then drink more than they should take at a time."

Water Content of Butter.

Professor E. H. Farrington, of the Wisconsin Experimental Station, has issued the following letter on the above subject:—

The amount of water in butter is generally supposed to be indicated by the number of drops of water or brine that appear on its surface. Some butter seems to hold a great deal of water in the form of brine, which leaks out of the package. Other lots are dry and show hardly any moisture on the surface or in the wrappings. This difference in the apparent water content of butter was very strikingly illustrated by that on exhibition at the meeting of the National Association of Creamery-Butter Makers held at Sioux Falls in January, 1899. One of the features of this convention was the exhibit

sible a cause for the dry appearance of the foreign butters. After two months work with the assistance of Mr. C. E. Lee, a graduate student in the dairy department, a satisfactory explanation of the difference has been obtained. Without going into many of the details of the work at this time the final conclusions may be briefly stated. The general outline of the work was to take freshly-churned granular butter, dividing into two equal parts, one of which was salted "one ounce to the pound" and the other was not salted. Both lots were worked the same number of revolutions on a Mason worker at the same temperature and samples taken for analysis. Eighteen such trials were made and in every case the unsalted butter had the dry, brineless appearance of the foreign butters, while the salted butter showed drops of brine very plainly on its surface.

The chemical analyses showed that the salted butter contained from 1 to 5 per cent. less water than the unsalted, the average of the eighteen trials being for the salted butter 11.51 per cent. of water and for the unsalted butter 14.69 per cent. of water. The salted butter contained an average of 3.24 per cent. salt, and as a rule the amount of water decreased as the salt increased, although judging from the appearance of the butter the reverse seemed to be true. This experiment explains the dry appearance of the foreign butter, since it is a well-known fact that such butter contains very little, and in some cases, almost no salt.

The Cheese Eating Habit.

In the June 5th issue there was a circular letter from the Provincial Dairy Superintendent to cheesemakers on branding the word "Manitoba" on cheese, and he also called attention to the advisability of keeping at home the poorest cheese. The policy of keeping at home the poorest cheese for the patrons of the factory and others in the province to eat, may be the best one so far as the credit of our cheese abroad is concerned, but it certainly is not the best one to develop a taste for good cheese at our own doors. Patrons of cheese factories, as well as all the people in the province, should be encouraged to eat more cheese by supplying them with the very best that it is possible to give them—not the poorest. Cheese makers in Ontario are now realizing their mistake in keeping all the cull cheese for home consumption and are now supplying patrons and the home market with the very best cheese instead of the poorest. Canada is becoming her own competitor in the British cheese market, yet her people do not eat as many pounds of cheese per head as the British people do, largely because they have always had the culls to eat. There is therefore great room for expansion at home in this matter, and especially so in Manitoba, for the total make of cheese in the province furnishes only a few pounds per head—the province could eat it all and nobody be hurt by the quantity they would have to consume. Give us the best cheese to eat.

Then, too, a change is needed in our system of making cheese. The method of manufacturing was developed to meet the demands of the British market, when shipping facilities were slower than they are now. A slow curing cheese was necessary then, as it was four and five months from the day the cheese was made before it was placed on the British market for consumption. Consequently the cheese was made hard and dry, so that it would ripen slowly. With the advent of cold storage and quicker transit, our system of cheese making is found to be wrong. Already complaints have been made about the hardness of our cheese and a demand made for a softer, ripier cheese. Canadian makers must therefore go back a step in their work and make a softer, quicker ripening cheese to keep pace with the quicker marketing that now takes place.

The Farmer is pleased to know that the Dairy Superintendent is instructing all the cheese makers to make a softer, quicker curing cheese, one that will be ready for market in from a month to six weeks from the time it is made.

Our cheese eaters have something to learn, too, in the way of eating cheese. We have formed the habit of eating, for eating certain things is a habit, unripe cheese—green cheese. Cheese makers declare that there is a demand for this kind of cheese and that they are only catering to the demand in supplying it. The cheese makers, however, are responsible for first creating the taste. Few families now want well ripened wholesome cheese—cheese that can be digested and that agrees with a man's stomach. It is high time a campaign was begun in educating people to eat soft, well ripened cheese. There is plenty of room for it. Manitoba produced last year scarcely four pounds per head of her population. With education and a more easily digested cheese our cheese makers should have no trouble in marketing all their cheese in the province, or in the Territories and mining camps to the west of us find a market for a greatly increased output. Let us learn to eat the right kind of cheese.

Experiments have proven that neither day time nor night time is superior as a milk producing period.

Skimmings.

Cows differ in their power to make milk from food and the same cow varies in this respect from time to time.

The yield of milk from different cows under the same conditions differs greatly, and that from the same cow varies widely from day to day.

It pays to select a cow according to her ability to convert food into milk and according to the character of the milk she produces, i.e., its richness in fat.

The proportion of solids not fat is higher in the milk first drawn from the udder, but in that last drawn the proportion of fat is decidedly the greater.

The composition of milk is very variable; the ratio of fat to other solids, and that of solids to water, are not constant as between different cows or for the same cow on successive days.

Fat is the most variable constituent of milk and its variations are independent of those of the other solids; therefore the yield of milk is the better index of the other solids than it is of the fat.

When the time between milkings is unequal the longer period will generally, though not always, give the larger yield of milk, of fat, and of solids not fat, but the difference in yield does not correspond to the difference in time; that is, the secretion calculated per hour is greater during the shorter period.

Any sudden change in temperature, feed or care may not permanently affect the percentage of butter fat in milk, but it will cause a temporary change both in quantity and quality, and may in a large measure account for the fluctuations in the butter fat test experienced at so many of our creameries.

Unless you love your work you cannot do your best with it. Most people have the opposite feeling for their work, and do it grudgingly, complainingly, and that is why ninety-five per cent. of the people who go into business the first time make a failure of it. A man cannot love his work without knowing it pretty thoroughly, and if one has a wide knowledge of his work he is very apt to like it and not be easily led into a will of his own.

The latest dodge to avoid the penalties against oleomargarine came out in an English police court the other day. The defendant swore he had not "exposed" for sale the article in question. It was kept covered and though the buyer swore she saw the lump from which she was served, the accused got the benefit of the doubt, and the case was dismissed. But the label on the paper in which the butter was packed up will furnish material for a new trial, and meantime the facts have been well ventilated.

The value of shelter from storms has been well illustrated at the Nebraska Experiment Station. During a feeding experiment it was observed that the weather exercised a very decided influence on the fat content of the milk. During this trial there were ten sudden storms and cold waves. Of these, seven caused a diminished yield of milk. The per cent. of fat diminished in five cases, remained constant in four, and increased in one. The cows at the time were warmly stabled. A great deal of the profit can be wasted by neglecting to give the cows the treatment they deserve. The only way the cow has of telling us about it is in diminished milk yield and in a lower percentage of butter fat. It is a quiet way, but a very effective one, and unless a man is on the watch his profits may be materially reduced and he not able to account for it. Naturally he will blame the cow.

The Latest!

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J. O. CADHAM, Portage la Prairie.

Manuf'g and Sole Agent for Man. & N.W.T.

The Veterinary Association of Manitoba

Under the authority of Secs. 18, 19, 20, 22 and 26 of the Veterinary Association Act, 1890 (53 Vic., Chap. 60) the following persons ONLY are entitled to practice as Veterinary Surgeons in the Province of Manitoba, or to collect fees for service rendered as such:

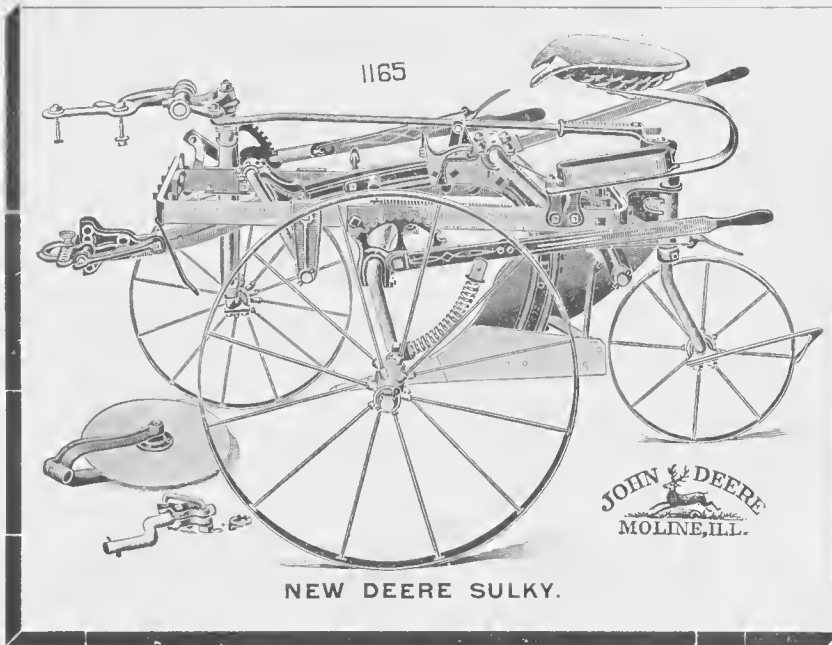
Atkinson, J. C.	Winnipeg.
Baker, G. P.	Russell.
Braund, F. J.	Wawanesa.
Brocken, G. E.	Clan William.
Coote, H. L.	Minnedosa.
Cox, E. A.	Brandon.
Dann, J.	Deloraine.
Dunbar, W. A.	Winnipeg.
Fisher, J. F.	Brandon.
Fowler, J.	Souris.
Graham, N.	Dauphin.
Green, E.	Birtle.
Hatton, J.	Alexander.
Henderson, W. S.	Carberry.
Hiuman, W. J.	Winnipeg.
Hilliard, W. A.	Minnedosa.
Hilton, G.	Portage la Prairie.
Hopkins, A. G.	Neepawa.
Harrison, W.	Glenboro.
Hurt, W. N. J.	Belmont.
Irwin, J. J.	Stonewall.
Lake, W. H.	Miami.
Lawley, E. H.	Brandon.
Leslie, W.	Melita.
Little, C.	Winnipeg.
Little, M.	Pilot Mound.
Little, W.	Boissevain.
Lipsett, J. H.	Holland.
Livingstone, A. M.	Melita.
Martin, W. E.	Winnipeg.
McDonald, J. D.	Oak Lake.
McFadden, D. H.	Emerson.
McGillivray, J.	Manitou.
McLoughry, R. A.	Moosomin.
McMillan, A.	Brandon.
McNaught, D.	Rapid City.
Murray, G. P.	Winnipeg.
Nagle, J. W.	Morden.
Reid, D. S.	Hartney.
Robinson, P. E.	Emerson.
Roe, J. S.	Neepawa.
Rombough, M. B.	Morden.
Rowercroft, S. V.	Birtle.
Rutherford, J. G.	Portage la Prairie.
Sankey, C. A.	Boissevain.
Smith, H. D.	Winnipeg.
Spiers, J.	Virton.
Shoults, W. A.	Gladstoue.
Smith, W. H.	Carman.
Stevenson, J. A.	Carman.
Swenerton, W.	Carberry.
Taylor, W. R.	Portage la Prairie.
Thompson, S. J.	Carberry.
Torrance, F.	Winnipeg.
Waldon, T.	Killarney.
Walker, J. St. C.	Sheppardville.
Welch, J.	Roland.
Whaley, H. F.	Glenboro.
Whimster, M.	Hamiota.
Williamson, A. E.	Winnipeg.
Young, M.	Manitou.

The practice of the veterinary profession in Manitoba by any other person is in direct contravention of the statute and renders him liable for prosecution.

W. J. HINMAN, REGISTRAR.

When writing mention The Farmer.

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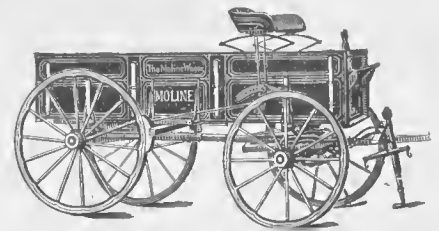
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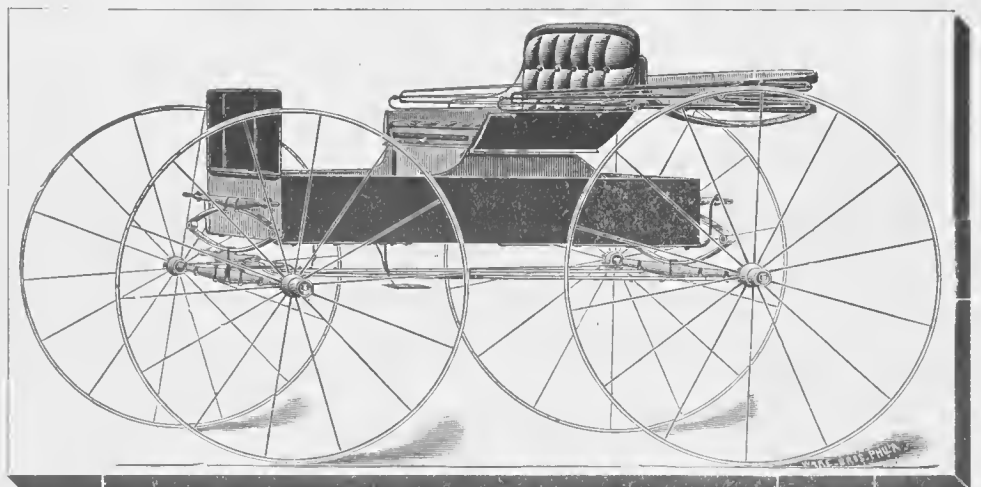
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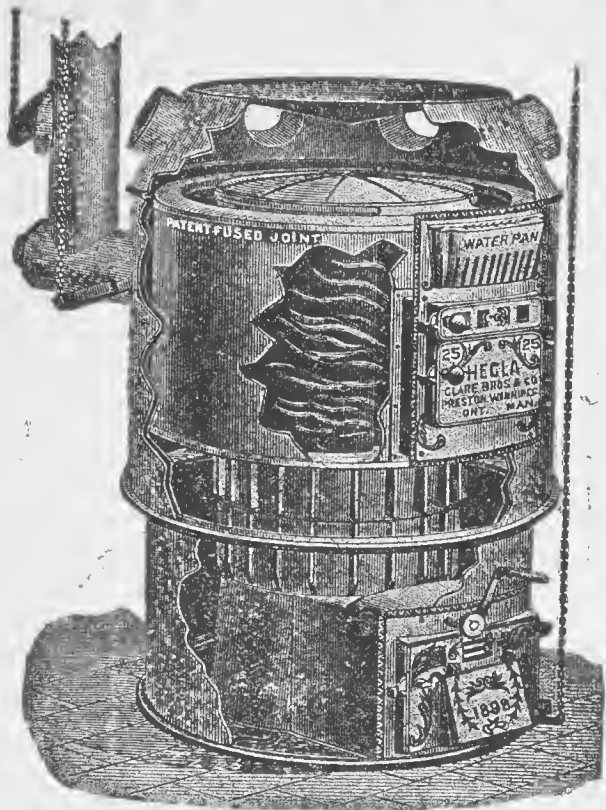
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It must give better results for the fuel consumed. Try one, and you will find it a CHEAP AND EASY matter to keep your house warm.

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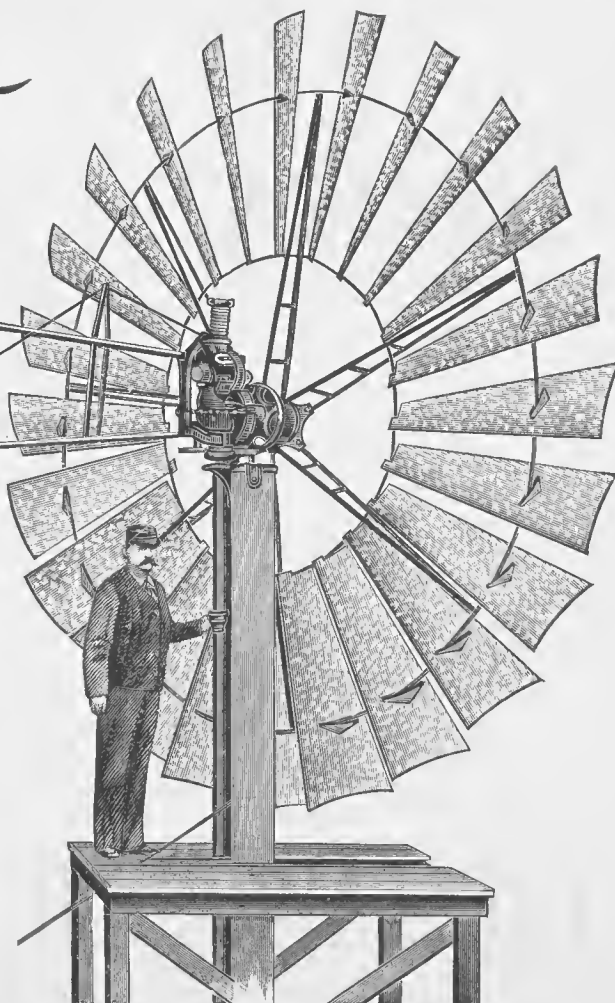
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THE FARMERS CHIEF COMFORT and CHEAPEST POWER.

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SELLING AGENTS.



Butter Business at Calgary.

Through the courtesy of Supt. Marker and buttermaker F. Kidd, one of our representatives was recently shown through the creamery and cold storage rooms at Calgary. The cream supply up to that time (June 24th) had not assumed its fullest proportions on account of the lateness and coolness of the spring and the large number of patrons who had held back milk for calves. Everything about the creamery was in good shape and Mr. Kidd was looking for very much larger receipts of cream a little later on. A

beginning of the season, to refresh our minds as to the best conditions for successful cream raising. If these are not observed considerable loss will occur. Of course the calves will get it, but grain at less than a cent a pound is cheaper calf feed than butter fat at even 10 cents a lb. It is well, therefore, to remember the following:—

1. Milk containing large fat globules throws up the cream more rapidly than milk whose fat globules are small. As a rule the milk of the dairy breeds has the largest fat globules, and of these milks that of the Jersey and Guernsey has perhaps the largest fat globules.



The Farm Home of R. H. Henderson, Winlaw, Assa.

Trees in view have all been grown from seed maple.

good deal of cream is gathered to this point, by the trains. The large cold storage room here is equipped to accommodate the shipments from the various factories in Mr. Marker's system and holds over 100,000 lbs. of butter. There has been no trouble here from mold or dampness and a match may be struck on any part of the walls. The partition between the storage room and ice chamber extends to the ceiling and the circulation of cold air is made by means of ventilator shafts at the ceiling and floor. A dozen good-sized galvanized iron pipes extend from top to bottom of the room and are kept well-filled with ice and salt. These are filled from the making room above and very thoroughly collect and freeze all moisture in the atmosphere of the storage room. A great deal of importance in this matter of dryness is attached by Mr. Marker to keeping the pipes filled constantly and to the use of plenty of salt amongst the ice, as also to proper insulation of both ice room and cold storage chamber. Consignments had been received from a large number of the Alberta creameries and others from the Assiniboia ones were expected in a day or two. Sacking is used on all the boxes and plenty of parchment paper is used inside—two or three layers. The using of the sacking—while it costs a few cents per box—is found to provide for a nice delivery of the boxes. The make of a number of the different factories was sampled and showed nice uniformity and good quality. Quite a good deal of the make is being put up in prints and tins and a new flat style of box for the shipping of prints is in contemplation. Mr. Marker looks for considerable development this season in the butter business in the west.

Gravity Creaming.

Although the number of hand cream separators in operation in Western Canada is constantly on the increase, still for many years to come the great bulk of cream will be raised by the old gravity methods. Of these the deep pails will no doubt give the best results when carefully handled, and it may be well at this, the

possible is readily seen. If this is not done the range of falling temperature is short and close skimming need not be expected.

4. Milk that is allowed to stand around and cool off before setting will not throw up all its cream.

5. The lower the temperature of the cooling medium, to 39 deg. as a limit, the closer the skimming.

The percentage of fat or of other solids, is not always highest in the smaller yields of milk, as many suppose, but cows that give milk containing a high per cent. of solids generally show a low total yield.

Butter-Milk from Skim-Milk.

Butter milk is recognized by all as a healthy summer drink, in fact, in cities it is on tap at many of the bars and restaurants, and is becoming a fashionable summer drink. Many farmers sell all the butter milk they have to spare and then the demand cannot be supplied. It may be new to many that good butter milk can be made from skim milk and thus the demand for greater quantities easily met.

The usual way of treating the skim milk in converting it into butter milk is to set it in a vat or can and add a little butter milk to it. This acts as a starter and in twenty-four hours at the ordinary temperature of the air in the summer, it should be ripe enough. Now put the sound milk in a churn and churn it for thirty minutes to twice that time. This butter milk will give great success and aid in supplying that wholesome drink in summer.

The creamery at Gladstone, Man., was very late in starting this season, but is now doing its best to make up for lost time, and a substantial increase on last year's make is expected.

The Innisfail creamery is in a most flourishing condition. May, 1899, showed an increase of over 50 per cent. over May last year. June will show quite as satisfactory an increase. Two tons of butter is being made every week, the bulk of which is being put in cases for the Japan and Klondike trade.

The fact that cream will not rise well on pasteurized milk has always been an objection to its use, and has probably prevented a widespread adoption of the process for city milk. J. F. Woodward, a former student of the Wisconsin dairy school, working with Professor E. H. Farrington, has found that heating the milk to 140 degrees for thirty minutes produces all the good effects of pasteurization at higher temperatures and yet does not affect the creaming of the milk so treated. This discovery will be of ma-



"Beezy Heights Farm," the home of Wm. Dickson, Indian Head, Assa.

terial advantage to the city milk trade, and cause pasteurization to be more widely adopted.

A racing man has named his horse "Bad Egg." He has discovered that a bad egg cannot be beaten.

Guest: "See here, waiter, I ordered a young duck, and you have brought me a tough old hen."

Waiter: "No, sah; dat war a duck. But de duck egg war incubated by a hen, sah; and when de duck came out he done gone assumed de proclivities of de hen, sah."



The Buff Orpington.

A breed of fowls, like a strain of horses, or a brand of wine, must have some striking point or points characteristic of no other breed in order to become popular with the poultry fraternity, says "The Feather." If it does not have something to enhance its value it is quickly relegated to the shelf to make room for the next aspirant for popularity, and such has been the fate of a score or more breeds in the past.

When England does anything she never does it by halves, and she certainly has given us the whole thing when she presented us with the latest thing out in fancy poultry. It is not very flattering to home

"Vice is a monster of such frightful mien, That to be hated needs but to be seen; But seen too oft, familiar with its face, We first endure, then pity, then embrace."

covers this case nicely, and this makes the Orpington hold a unique place in poultrydom in this country. There is a widespread prejudice against white-legged fowls here, a very unreasonable one at that. It has prevented a great many breeds from becoming popular, but the Orpington has overcome this with all who have come in contact with it. It has overcome it because you can not keep a good thing down, and that they are good the following will show:—

I imported at one time four pullets and a cockerel. These fowls were shipped from the interior of England, and, of course, crossed the Atlantic and were again shipped by rail a distance of nearly one hundred miles, arriving here on the 8th day of March, 1898, and on the day of their arrival one of the pullets laid, and in the remaining twenty-three days of March the four pullets laid fifty-seven eggs. The following month the egg total footed up seventy-seven and in May these same fowls rolled up the grand total of eighty-two eggs.

This is a remarkable showing under the circumstances, but it is characteristic of this breed; and we venture to predict that they are destined to become popular with both farmer and fancier in a short time.

How Many Hens?

The frequent question is, how large must a flock of hens be in order to make it pay their owner to buy an incubator? The question sounds wise enough, but it misses the real point. We must ask how many chickens are to be raised, and at what time of the year? The man with only fifteen or twenty hens needs a fair sized incubator if he wants to turn most of their eggs into chickens very early in the year. He cannot do this without an incubator. The whole problem resolves itself into the simple business proposition of how many, and when?

We understand that Chas. Midwinter, Oak Grove Poultry Yards, Winnipeg, purposes making a good exhibit at the Industrial of incubators and brooders. We trust the management will find a better location for this exhibit than last year. It was placed in a small corner which was not at all suitable, and many who were interested could not see it.

WINNIPEG POULTRY YARDS.

HOUDANS AND GOLDEN WYANDOTTES.

At Poultry Show, Brandon, February, 1899, won on Houdans 1st Cock, 1st Cockerel, 1st Pullet, 1st Pen. Special for best display. Numerous prizes won last five years. Have also grand pen Golden Wyandottes. Eggs from either breed \$2 per 13. Choice stock for sale. Address—S. Wisc, 633 Ross ave., Winnipeg, Man.

Single - comb White Leghorns.

SPECIAL OFFER.

After June 1st will supply Eggs for Hatching from my high-class White Leghorns at \$1 per setting of 13. Barred Plymouth Rocks, 75c. per setting of 13.

W. A. PETTIT,
Acme Poultry Yards, Boyd Ave., Winnipeg.

Louise Bridge Poultry Yards

UNCONQUERABLE.

My noted strain of Single and Rose Comb White Leghorns, White Wyandottes and Black Spanish have again proved their superiority, winning at the Brandon Poultry Show, February, '99, 15 first prizes, 10 seconds, 4 thirds, 3 Silver Cups and Gold Medal; also \$5 sweepstake for 4 highest-scoring birds in the Show. I exhibited 39 birds, with an average score of 94¼ points per bird. A record like the above was never equalled in Manitoba. I have mated up the finest pens of the above varieties that can be found in America. Eggs from these grand pens \$3 per 13, \$5 per 26. B. P. Rock Eggs \$2 per 13. No more White Wyandotte Eggs for sale. Have all orders that I can possibly fill. Address—

GEORGE WOOD,
Louise Bridge P.O., Winnipeg, Man.

Oak Grove Poultry Yards,

LOUISE BRIDGE P.O., WINNIPEG, MAN.

A few pair of young Pekin Ducks from imported and prize-winning stock, at \$4.00 per pair.

My Turkeys are all sold, except those required for breeding stock. Am breeding from two of as fine yards as there are in Manitoba.

I am sole agent for Manitoba and N.W.T. for GEO. ERTEL & CO.'S VICTOR INCUBATORS and BROODERS. These machines have copper tanks, moisture pans, thermometers, egg testers, egg turners, regulators and lamps. Everything is complete, and every machine goes out with a guarantee that it will do as represented or money will be refunded. Send for 1899 Circular.

Address—CHAS. MIDWINTER,
Louise Bridge P.O., Winnipeg.

BUY

WINTER LAYERS.

LIGHT BRAHMAS.

Pen No. 1. Were purchased and selected by Judge L. G. Jarvis, of Guelph. Eggs \$2.50 for 13.

Pen No. 2. Eggs \$1.50 for 13. I am importing ANCONAS, the greatest winter layers known. A limited number of sittings at \$5 per 13 after April 25th.

ANCONA POULTRY YARDS, Box 562, Winnipeg.

Buff Cochins.

Eggs at \$2 per 13 from my Prize-breeding Pen. These birds have never been beaten. Also a few choice Cockerels for sale cheap.

F. D. BLAKELY,
2304 285 Ellen St., Winnipeg

G. H. Grundy,

Box 688,
Virden, Man.,

Breeder of Exhibition B.P. Rocks, S.L. Wyandottes and B.R. Game Bantams. I have mated this season four pens of B.P. Rocks and two of Wyandottes. Pen A in B.P. Rocks mated for cockerels; pen headed by imported cock. Pen B mated for pullets, and headed by 1st prize cockerel at Man. Poultry Ass. Show at Brandon in Feb. Pen C mated for pullets, and headed by an imported cockerel from which I look for grand results. Pen D mated for cockerels, and headed by my ideal cockerel scoring 92½ by Judge Shellabarger at Brandon, the highest scoring B.P. Rock in the Show. Wyandottes mated for best results. Can furnish Eggs from the above pens at \$3 per 13, \$5 for 26. If you want the best at fair prices, here they are. Satisfaction guaranteed.

WHITE PLYMOUTH ROCKS.

Winning at last Exhibition of Manitoba Poultry Association four firsts and two second prizes.

If you want good birds, write for prices.

S. B. BLACKHALL,
696 McMicken St., Winnipeg.

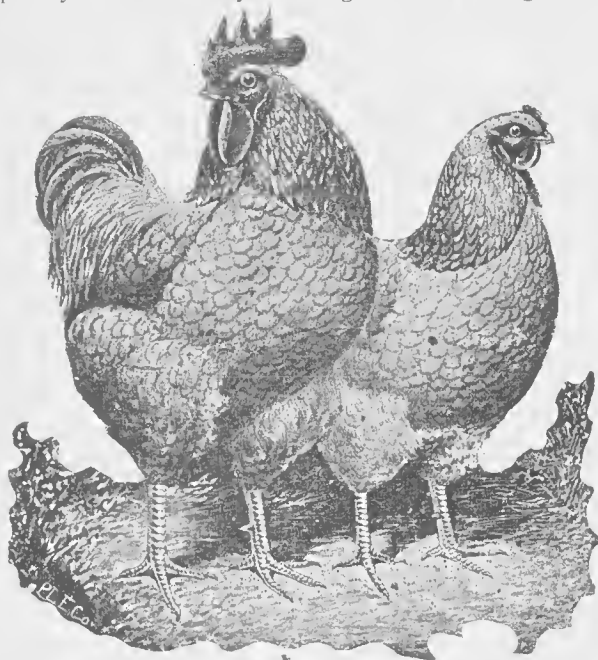
J. TODD & CO.

Breeders of pure Stock in the following lines of Poultry:—

Barred and Buff P. Rocks. Golden and Silver Spangled Hamburgs. Black Langshans. Eggs, \$2 for 13; \$3.50 for 26.

Stock for Sale. Will help customers to get any other Stock required.

J. TODD & CO., 457 Henry St., Wpg.



PAIR OF BUFF ORPINGTONS.

industry to think that we must cross the water to get our most valuable breeds, but, be that as it may, our English brothers have in this instance presented us with a fine breed and deserve the credit.

The breed we have reference to is the Buff Orpington. In form it is a symmetrical, upstanding bird, with a graceful carriage. The plumage is a soft, even buff, with a fine undercolor. The legs are free from feathers, white, strong and of medium length, four toes upon each foot, white toenails. The face is red, comb single, not large, and less liable to freeze than the Mediterranean breeds. The eye is brown. The breast is broad, deep, and full, with long, straight breast-bone. The skin is thin and fine texture. The meat is very juicy and fine grained, and pronounced by epicures to be far superior to all other breeds for table use. The standard weight is six to eight pounds for the hen and eight to ten pounds for the cock. The chicks are hardy and mature early. The object in forming this breed was to combine prolific egg production with superior flesh for the table, hardness of constitution, rapid growth, and fine form and plumage. Possibly when you read the description and come to the white legs you will say, "I don't want any white-legged chickens around me," but the old adage which runs something like this,

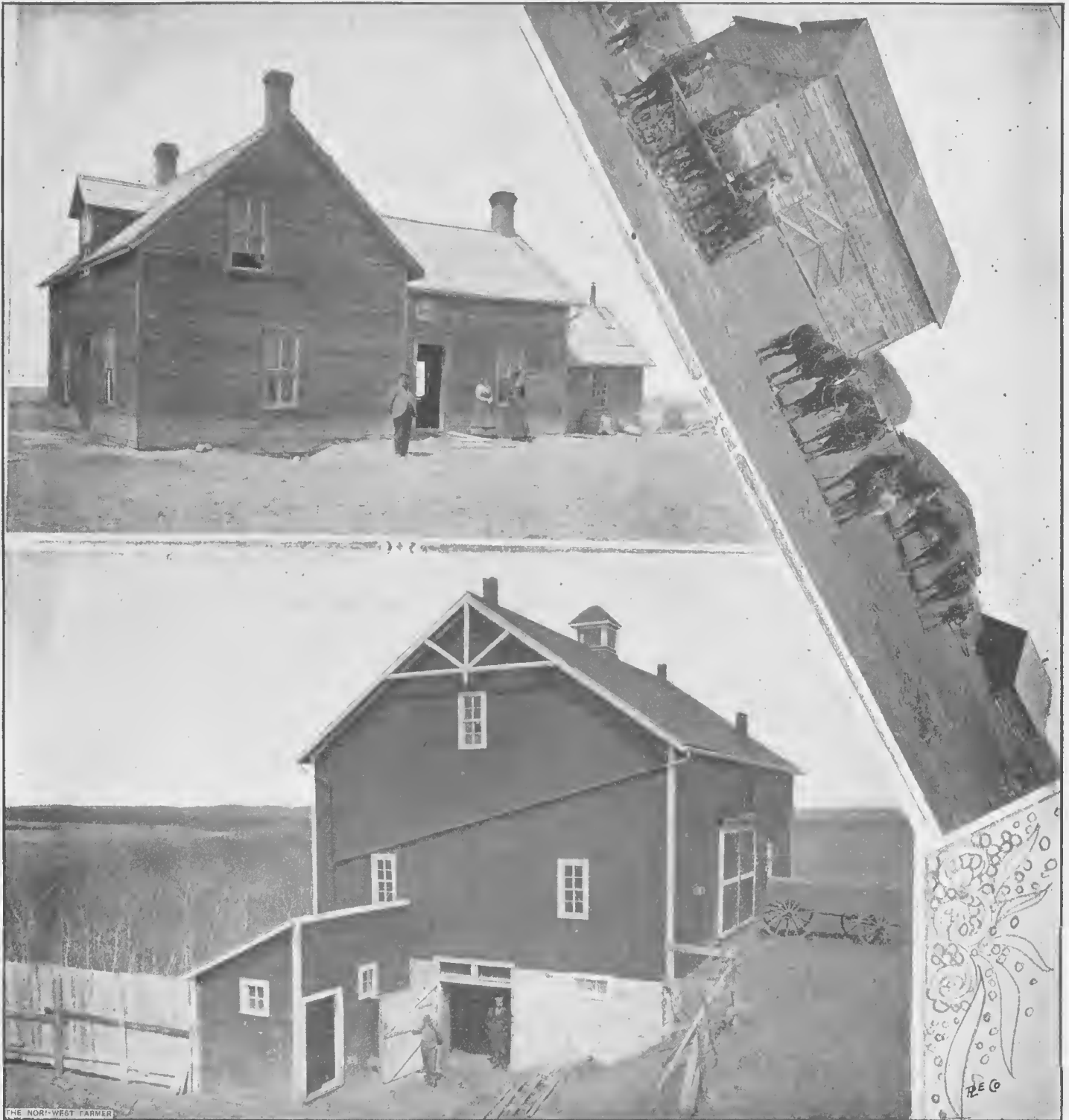
A Great English Market for Canadian Poultry.

It will be remembered by our readers that the experimental shipment of fattened poultry to Liverpool, England, by Prof. Robertson, last fall, was singularly successful, the birds netting \$1.76 per pair wholesale, or showing a profit of 50 cents

come of the shipment was the reception a short while ago by Messrs. Yuill & Son of the following letter from Alderman Ruddin. The letter is so fraught with importance as affecting the development of Canadian poultry, that the greater part of the important communication is given as follows:—

* * * * * "The whole transaction was so completely successful and satisfac-

opportunity of encouraging you to extensive operations in poultry for the coming season. You need have no fear as to the ultimate results. Only turn your poultry out in the same order and condition as you did the experimental lot and I will see that profits will accrue. I am confident that I can create a large trade in Canadian poultry if I am able to secure responsible and reliable feeders and packers



On the Farm of W. H. Stephens, Indian Head, Assa.

per pair after paying all expenses. The birds were purchased and fattened by Messrs. Yuill & Son, farmers, in the vicinity of Carleton Place. They were consigned to Alderman James Ruddin, of Liverpool, a leading dealer of poultry and game in England, perhaps in the world. It may also be remembered that the consignee was so much pleased with the appearance of the birds that he called them "Capons." So far so good, but the out-

tory in every particular that I am loath to let time pass without venturing to enquire as to your intentions in regard to the export to England of your fattened poultry. Being the first to handle your stock I would hope to continue to do so; being sure that no one in England could offer you the same facilities, service and interest that I command. Anticipating, therefore, that you will be inclined to favor me with your consignments, I take this early

like yourselves. The business will need co-operation of a willing and intelligent order. The trade will then be readily established and it will only be the packer's fault if he does not maintain his position and hold the business. I might say that the English market receives poultry from every country in Europe as well as from Australia and New Zealand. I can state, however, without the slightest fear of contradiction, that the Canadian poultry

has no compeer and therefore no competitor on equal terms. For not only is the Canadian poultry superior as to quality and suitability, but its condition is always assured through the services of the refrigerator. I hope to call on you in June or July. Meanwhile I hope to hear from you at your convenience.—James Ruddin."

No more important statements from such an undoubted source have ever been made in relation to Canadian poultry. Let us enumerate some of the points.

1—A leading poultry dealer in England is anxious to secure the handling of Canadian poultry of good quality.

2—The farmer does not go to the English dealer but the latter solicits the farmer's trade.

3—That in the opinion of this expert English dealer "Canadian poultry has no compeer, therefore no competitor."

4—That only care in feeding and packing is required to establish an almost unlimited demand.

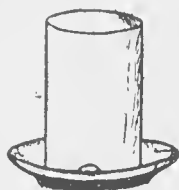
Surely no such bonanza has ever been opened to the Canadian farmer or breeder! Just fancy a Canadian farmer being told that his birds, or those purchased from neighbors, after being sold for \$1.76 per pair in Liverpool, cannot be beaten by poultry from any other country in the world! And now there is competition among English dealers to receive consignments of Canadian poultry of superior quality.

And what is of more immediate value to our farmers is the statement made by the Messrs. Yuill that "the birds which dressed best (and consequently made the best impression) were barred Plymouth Rocks." Not that other thoroughbreds might not have done as well, but because barred Rocks were in greater supply in that locality and were therefore secured in greater number.

And what are our farmers going to do about it?—Canadian Poultry Review.

Care of Young Chicks.

Give the young chicks clean, fresh water three or four times a day; it is one of their essential needs. If the weather is cold have the water tepid. A convenient drinking dish that will prevent the chicks from diving into the water and splashing it around is made by taking a tin can, remove the top and cut two small holes on opposite sides, about three-quarters of



an inch from the edge. Fill the can with water, place a flower pot saucer over it, and turn it over quickly, the water will come out the small holes until it is on a level with the top of them. This makes a convenient dish for adult fowls; but for them the holes should be cut two inches from the edge so the water will stand about two inches deep in the saucer.

Several first class importations in poultry, geese, ducks and turkeys have reached the west this year. This is a good sign. If you have good females buy a first class male and you will find it costs no more to breed good birds than it does mongrels. Consult the advertising columns of The Farmer and write for quotations on good stock. When the prices reach you do not compare them with what you can sell a poor grade for, that is not the kind you should place with your flock. Get the best, it pays best.



Before the Roof Leaks

make it water-proof and save it from decay with
THE SHERWIN-WILLIAMS CREOSOTE PAINT, the
original creosote paint. It will cost less than to let
the roof go and repair the leaks. Use it on shingle
roofs—any kind of wooden roofs. Creosote pre-
vents decay.

THE SHERWIN-WILLIAMS CREOSOTE PAINTS

is specially made for use on roofs, barns, out-buildings,
shops, bridges and fences. It preserves them at the smallest
outlay. It costs less than ordinary paints. It is far cheaper
than doing without any paint. Be sure it's **THE SHERWIN-
WILLIAMS CREOSOTE PAINT**. The label is your safeguard.
Send for color card.

THE SHERWIN-WILLIAMS CO., PAINT AND COLOR MAKERS,
Canadian Dept.,
21 St. Antoine Street, Montreal

BLACKLEGINE

(Trade Mark. Registered.)

Pasteur Black-Leg Vaccine.

Preventive remedy for Black-Leg. All ready for use. No mixing, no filtering, no "outfit" or syringe required. Applied with a needle. Supplied in Packets of three sizes—\$1.00, 10 doses, \$1.50; \$2.00, 20 doses, \$2.50; \$3.00, 50 doses, \$6.00.

PASTEUR VACCINE CO., - - 59 FIFTH AVENUE, CHICAGO.

THE MANITOBA FARMERS' MUTUAL HAIL INSURANCE COMPANY.

HEAD OFFICE - WINNIPEG, MAN.

This Company is conducted on the Mutual basis, and is managed by reliable insurance men, and is endorsed by the leading farmers of the Province.

This Company issues a Five-Year Policy, and every policyholder is a member of the Company.

This Company gives its members a benefit of \$800 on a quarter section for an assessment not to exceed 5 per cent., or \$40 per year.

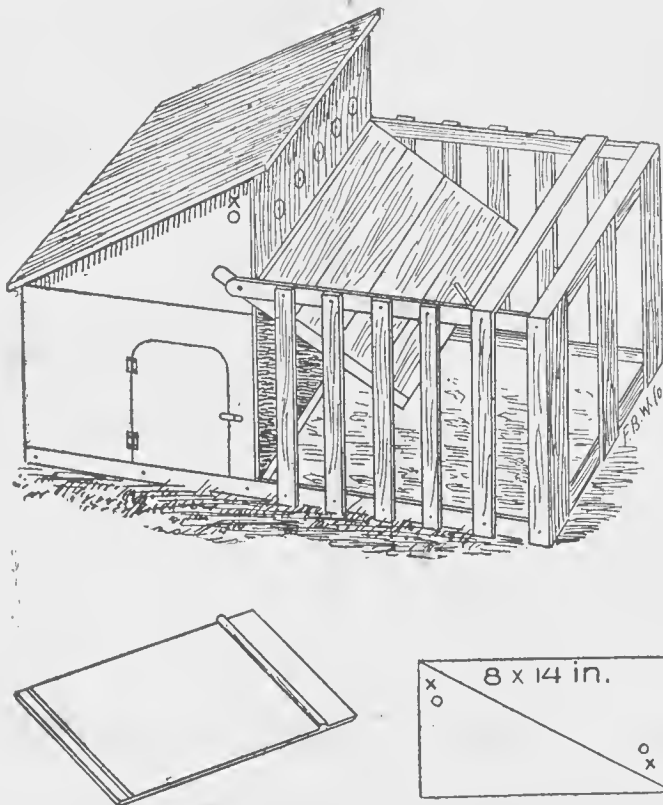
For further information address—

E. A. TAYLOR, Manager, - 503 McIntyre Block, WINNIPEG.

A Convenient Coop.

The illustration and description of coop here given is from the American Poultry Journal.

The coop is made of lumber 12 inches wide; ends and back 20 inches wide. Take 12-inch board 20 inches long, saw it from one corner to other. This makes gables and gives 20-inch height in front. To make the front solid nail 2-inch strips on inside of front from gable to bottom. The roof is made to fasten on with hooks. The bottom also is loose. The lid in front is made by cutting boards 20 inches long. Nail strips half-inch thick, $2\frac{1}{2}$ in. wide, 22 in. long on each end; nail them so that when the lid is let down half inch will lap over end, making lid 20 in. high. The ends of strip projecting over at top are to fasten to coop with screens. This lid makes part of cover to run when raised; it closes front of coop when let down. The run is made of lath. The sills are four feet long on each side. Nail them on each side of coop at bottom. Make the run



wide enough so that it will fit on outside of coop at top. The screens that hold on lid to front of coop should first pass through cleat at end in top of run. This lets the lid work freely inside of run. Make holes in front of top and ends for ventilation. To move the coop let the lid down in front; step inside of run, and you can carry it to fresh ground every day. The advantages of the coop are: It gives the hen fresh ground and sunshine; a place to wallow if dry; keeps rats out; it is easily white-washed by taking roof and bottom out.

A liberal supply of whitewash is the best disinfectant for poultry houses. Nothing better than lime has ever been discovered for this purpose.

The Manitoba Poultry Association will hold their annual meeting during Exhibition week, when it will be decided where the Poultry Exhibition will be held next February, and also the proposed amendments to the constitution will come up for discussion. It is hoped there will be a large attendance and it is probable that Mr. Sharp Butterfield, the judge, will give a practical address.

Poultry Fattening.

In no branch of farming perhaps is Canada so far behind as in poultry feeding and Manitoba is easily the last in the race. Very few properly fattened home grown chickens are ever seen on our markets. They are usually in the condition in which a south of England poultry fatterer buys his from the farmers who breed them. The introduction in the east last year of English methods of feeding was an object lesson to everyone who cared to study the results. There ought to be three or four poultry feeding stations in Manitoba this fall. We have the very best of feed for the purpose and can make money out of it if we only try.

Every reader of farm papers must be more or less familiar with the start made by Professor Robertson, at his own place and one or two other stations last year, in feeding for the market on the methods now followed by the best and most extensive feeders in the southeast of England. Exactly similar methods are fol-

The food consists of ground buckwheat, mixed with milk, forming a kind of paste, not too liquid, which is fed to them twice daily, very early in the morning and about four o'clock in the afternoon. About noon, pure milk, or milk mixed with a little water, is given them. If the fowls refuse to take the food, they are not forced to eat, but are removed from the coop and killed; otherwise they get thin and lose their market value.

In this way the finest table poultry is produced, and which fetches the highest price in the markets. This being the case, such practical details as these cannot fail to be useful in our own country.

Breaking Up Broodies.

Breaking up broodies is often a difficult task for some of us, because the old hen takes a notion to hatch or rear a brood when you want eggs, or perhaps you have enough of chicks on hand, says the Ohio Poultry Journal. To grab her by the neck and yank her off the nest, and duck her two or three times in a bucket of water, so she has to gasp for breath, lock her in a small dark box three or four days with scarcely anything to eat or drink, and then expect her to shell out eggs as soon as you turn her out, is not the proper treatment. To deny her food and drink would pull down the strongest bird and make her a wreck, unfit for anything. Some people think it a good joke to let biddy sit on a door-knob or china eggs, thinking she will soon tire of her desire to sit and quit. They gain nothing in eggs, only wearing out the hen.

The time will soon be here when some of us will want to break up our broodies. The best and quickest way I have tried is to get a box; take one side and bottom out; get slats or lath one-half inch in width; tack them over the bottom, about three or four inches apart. Next slat the front so the hen can get her head out to eat and drink. Now turn down the bottom, put a small piece of wood or stone under each corner, and it is ready for biddy. She cannot sit down, but must stand up between the laths on the ground. Another advantage is the droppings fall through the laths and are easily cleaned by moving the box. In the evening put her back to a pen, and in the morning back to the broody coop.

The object of putting her back to a pen at night is to give her proper rest, but do not put her back where she can get on a nest in the morning. Two or three days of this treatment will break up the worst sitters. Give her wheat, oats, oatmeal mash and vegetables, so as to put her in condition for laying. Corn should not be fed, as it produces too much heat and fat.

The best method is to have broody coops clean and always on hand. Keep the birds in the broody coop out of sight of nests. Put them where they can see the other birds, so they will be anxious to escape, and they will soon forget all about sitting.

It costs the farmer a very little more to keep his stock pure than to keep pure-bred males and grow good grades. The only extra cost in the start is to get females. When stock is pure an extra price can always be secured for the best specimens of the flock or herd, and the extra price is what we all should strive for.

The poultrymen have apparently had a fair share of the business this season. Several dealers report that they have sold all they wanted to, in fact one or two reluctantly parted with birds that they did not think of selling, in order not to disappoint their customers, consequently they are a little short in stock. However, extra care of chicks and proper breeding will place all in good condition again.

lowed in France, as the following particulars will show:

The chickens are caponised in all cases, and when about three months old are put into coops of special construction, preparatory to fattening for market. These coops, or cages, are 24 in. high, 20 in. wide, and stand upon four legs, 3 ft. in height. The bottom is made of laths, so that the droppings can fall through. The top is an adjustable board to allow the free circulation of air. The front consists of laths placed at a distance of from 2 in. to $2\frac{1}{2}$ in. apart. The receptacle for food is a triangular-shaped wooden box. Each coop accommodates about twenty chickens, the length of the coop being from 10 ft. to 12 ft. They can, however, be made of any length. After the fattening period expires, the coops are thoroughly cleaned and exposed to the air for not less than fifteen days before receiving other chickens. The length of time necessary to fatten varies from four to five weeks, and the best age for fattening is when the chickens are from three to three and a half months old. When younger than this they cannot endure captivity, and when older they cannot become accustomed to it.

JOHN S. PEARCE & CO. LONDON, ONT.

DAIRY SUPPLIES. CANADIAN-MADE HAND SEPARATORS



Turns easy. Open bowl. Well finished. Most durable. Price reasonable. Best investment farmers can make. Catalogue free. DAIRY SUPPLIES OF EVERY DESCRIPTION. Genuine Parchment Paper, for lb. prints, neatly and tastefully printed. By mail, post-paid. Prices reasonable. Write us. Satisfaction guaranteed.

No. 9. Canadian Ideal.
Cap. 30 gals. per hour.

JOHN S. PEARCE & CO., London, Ont.

POULTRY SUPPLIES.

Pearce's Tonic Poultry Food, 1½ lb. box 25c, postpaid 40c.
Pearce's Electric Louse Killer, large Sprinkler-top box 25c, postpaid 40c.
Philadelphia Poultry Markers, each 25c postpaid.
Philadelphia Caponizing Seta, full directions for use, postpaid \$2.50.
"Champion" Leg-Bands, copper (give breed when ordering) doz. 20c, 50 for 85c, 100 for \$1.10
"Peerless" Leg-Bands, aluminum (give breed when ordering) doz. 25c, 50 for 75c, 100 for \$1.25
Incubator Thermometers, warranted correct, securely packed, each 75c.
The following can only be sent by Express or Freight at purchaser's expense.
Mica Crystal Grit, 100 lb. bags, \$1.
"Peerless" Brand Oyater Shell, 100 lb. bags, \$1
"Excelsior" & "Little Giant" Green Bone Cutters, from \$7 to \$12 each.

Send for our New Illustrated and Descriptive 72 page Poultry Catalogue free to all who are interested.

JOHN S. PEARCE & CO., London, Ont.

FALL BULBS

And Other Supplies.

Hyacinths, double or single mixed, doz. 60c, postpaid.
Tulips, double or single mixed, doz. 25c, postpaid.
Crocus, choicest mixture, doz. 15c, postpaid.
Narcissus, mixed colors, doz. 50c, postpaid
Snowdrops, double, doz. 40c, postpaid.
Iris, choice colors, doz. 25c, postpaid.

A great many other varieties in stock.

"Lily Brand" Ammonia Fertilizer, 15c and 35c packages, postpaid.
Jadco Fibre, 5 lb. 60c, 10 lb. \$1, postpaid.
Powder Gun, for dusting insect powder, 15c postpaid.
"Lenox" Atomizer, 35c each, postpaid.
"Eureka" Syringe, brass, 75c each, postpaid.

Send for our new Illustrated and Descriptive BULB Catalogue for a full list of Bulbs, Seeds, Fertilizers and requisites for the house or garden.

JOHN S. PEARCE & CO., London, Ont.

Elegance and Economy.

Boston Laundry Starch



This is the only up-to-date Starch in Canada. Boston Laundry Starch gives a fine, domestic finish to shirt bosoms, cuffs, collars and ladies' blouses.

The directions are so simple a child can use it. Sold at 10 cents a package.

The F. F. DALLEY CO., Limited,
Hamilton, Toronto and Montreal.

The Great Family Remedy. HIRST'S PAIN EXTERMINATOR.



Worth its weight in gold for Rheumatism, Neuralgia, Lumbago, Pain in the Limbs, Joints, Side or Back, Sprains and Bruises.

Nothing better for Chills.

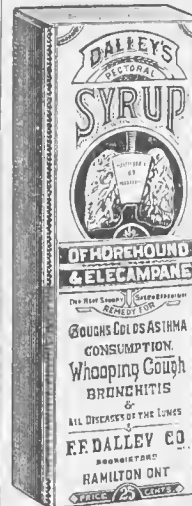
Never failed to relieve a pain in its most acute form during the last quarter of a century. Sold by all dealers at 25 cents a bottle.

The F. F. Dalley Co., Ltd.

HAMILTON, TORONTO
AND MONTREAL.

DALLEY'S SYRUP OF HOREHOUND

and ELEGAMPANE.



This Syrup will effectually cure the most stubborn cold.

It acts like magic on the bronchial tubes.

It will arrest consumption and prevent pneumonia, which are often brought on by slight colds neglected.

The F. F. Dalley Co.,
Ltd.,

HAMILTON, TORONTO
AND MONTREAL.

Build your Own Fence and SAVE MONEY.

BUILT WITH . . .

THE "GEM" FENCE MACHINE

Price \$5.

It makes fencing easy; weaves any kind of wire. Will weave stays on barb-wire rapidly and without trouble. With it you can make the best high-grade coiled-wire Fence at half the price manufacturers sell at.

JUST THINK OF IT!!

When you build 40 rods of Wire Fence—do it yourself—you save money enough to buy 40 rods more just like it.

We will show this machine at work at the Fairs—
PORTAGE LA PRAIRIE, WINNIPEG and BRANDON.

M. A. FERRIS, Agent, PORTAGE LA PRAIRIE.



Gem Wire Fence on the farm of The Sheddon Co., near Toronto.

McGREGOR, BANWELL & CO., WINDSOR, ONTARIO.

Moulting.

It will not be long until the moulting season is here, and it is a very important point to have the stock moult early. Of course it is well understood that the younger the bird the earlier she moults. The new feathers cannot grow until the old ones are off; therefore a systematic feeding is necessary to compel an early moult. The soft morning mash becomes useful here, and it can be safely fed every morning and a portion of linseed meal introduced, making the component parts as follows: One-fourth each of bran, ground corn and oats, corn meal and linseed meal. About twice a week add a small portion of ground beef scraps or cut green bone to this mash and it will be found to form a good balanced ration. But feed alone will not accomplish the whole result. Breeding pens should be broken up just as soon as the egg supply begins to diminish, thus separating the males from the females. Hens fed liberally during the laying season are apt to take on flesh, but during the moult they need this liberal supply of food to help them grow the new feathers. The object should be to get them into laying condition again before winter sets in, then you will have some good winter layers. Plenty of bone forming material should be fed when feathers are coming in.

Whence Came the Turkey?

To almost every one the turkey is a familiar object. Dwellers in towns see them in the market; but only to those who live in the country may habits, haunts, and disposition be known. Perhaps very few poultry-keepers know the history and origin of this useful bird, and how it came by the name it bears.

The domestic turkey, now found in the barn-yards of both Europe and America, is from the stock of wild turkeys originally inhabiting the forests of North America. There are, however, wild turkeys to be found in Australia and South America, which shows that the turkey is not altogether an American bird.

The first turkeys introduced into Europe were taken from the West Indies to Spain early in the sixteenth century, and soon after some were taken to England by merchants who traded with Turkey; and thus, it is supposed, they came by their name. When first introduced into this country, they were kept in parks as ornaments. At one time as many as two thousand had accumulated in the Royal Park, at Richmond, and in less than fifty years after their introduction they became so common that every farmer was able to serve them up at the Christmas dinner.

The Brush turkey, which is found in Australia and South America, is not so handsome, and requires a warmer climate than the North America turkey. The head is of a reddish color, the body dark, and the breast penciled with white, and they are also provided with strong feet, which they use in gathering together a large heap of leaves and earth, in which they bury their eggs to be incubated by the heat of fermentation. As soon as the egg is hatched, the chick works its way to the light, where it finds its mother waiting to protect it.

Another bird belonging to the turkey family is found in Australia, near the coast. Like the Brush turkey, they bury their eggs. They come down to the beach, and dig holes four or five feet deep in the warm sand, in which the hen deposits a single egg. When this is covered, she returns to the hills for food, sometimes going as far as ten or fifteen miles, and does not return for ten days, when she comes back and lays another egg in the same place, laying as many as seven or

eight in a season. These eggs are very large, and are greatly sought for by the natives, who come in great numbers in search of them. After the eggs are deposited in the sand, they are no longer cared for by the mother. The egg is hatched by the warm sand, and the chick must work its way to the surface, and take care of itself.

The white turkeys, which make such an elegant appearance, are by some mistaken for a different breed. They are, however, only of the common kind. It often happens that pure white turkeys are hatched from both the wild and domestic breeds.

Skilful breeding of these white "sports" has been the means of making what are sometimes termed White Holland turkeys. —S. W. P.

Scratchings.

Customer: "I say, uncle, how long have you had those new-laid eggs in stock?"

Rastus: "I dunno ezakly, boss. You see I'se only been wu'kin' heah a month."

Gentleman: "I'm afraid you're a bad egg. This is the third time I'se caught you poaching."

Pat: "Sure, av I wuz a bad egg, I wouldn't poach."

An experienced poultryman in Assiniboia says he has found that excessive feeding of meat to hens is liable to make the inner skin of the shell so tough as to interfere with hatching.

This spring's hatch seems to have been remarkably good in some cases, while others report failures. On the whole, reports sent to us show that so far this year is better than last.

It is not possible for all to give their chicks unlimited range, and in such cases the feeder will have to make up the deficiency by feeding bone-forming elements. The best of these is green-cut bone.

Little Walter: "Let me hear you crow, won't you?"

Miss Oldun: "Why, child, what do you mean?"

Little Walter: "Why, papa said you were no chicken, so you must be a rooster."

Goslings are about the easiest of all domestic poultry to rear, and when once hatched require very little looking after. They are unlike chickens in that they do not require brooding. A roomy coop or crate suffices them from the time of hatching until about ten days old, when they can be liberated, and will prove splendid foragers.

E. Walton & Son, of Medicine Hat, Assiniboia, have opened out this year in the poultry business, and have been running three incubators. They are commencing with Black Minorcas, Barred Plymouth Rocks, White Wyandottes, Brown Leghorns, Mammoth Bronze Turkeys and Pekin ducks. T. H. Tinney, of the same place, has been breeding Red Caps for a few years and has found a very good local market for all the eggs he can raise.

A novel method of judging has been adopted for the poultry show to be given in Chicago next winter. The five prize birds in each class are to be selected by comparison, two judges to act together in placing the awards, while a third judge will act as umpire in deciding any disagreement. After the prizes have been awarded, the remaining birds in each class are to be scored by the same judges, one scoring the cocks and pullets, the other the cockerels and hens. The purpose in adopting this combination method seems to be a desire to satisfy the advocates of both the comparison and score-card sys-

tems. It will be an experiment, the result of which cannot be foretold with certainty, but, so far as we have seen any expression on the subject, the trend of opinion seems to be that it will, to a reasonable extent, fulfil the expectations of its champions.—Ohio Poultry Journal.

Liming eggs is both a practical and simple way of preserving them, and we don't know of a better, unless you keep them in a cold storage house at a temperature always above freezing—say 38 to 40 degrees—when they will keep six months with safety. There are many formulas for making the lime solution. One of the best plans is packing in jars. Care should be taken to select a receptacle from which the eggs can draw nothing; hence glass jars or stone crocks are preferable. Six gallon glass jars will hold 20 dozen eggs. Slack about a peck of lime; to this add six pailfuls of water and three quarts of salt. This should be all dissolved, and when settled is fit to use. Pour the thin limewater into the jars, cover them with cloth, and on this spread a coating of the thicker limewater. The solution must stand in the jars so as to cover the eggs. A peck of lime will be enough to preserve about 100 dozen eggs.

Summer and Fall Fairs.

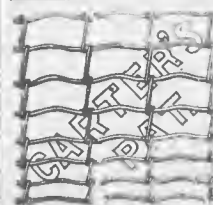
Shoal Lake—July 5 and 6.
Portage la Prairie—July 5 to 7.
Emerson—July 6 and 7.
Oak Lake—July 7.
Winnipeg—July 10-15.
Brandon—July 18-21.
Cypress, No. 1 (Glenboro)—July 25-26.
Virden—July 25-26.
Regina—July 25-26.
Oak River—July 26.
Cypress River—July 27 and 28.
Turtle Mountain, Boissevain—July 27-28.
Killarney—Aug. 1-2.
Minnedosa—August 2.
Central Assiniboia (Indian Head)—Aug. 2-3.
Carberry—Aug. 3-4.
Neepawa—Aug. 8-10.
Moose Jaw—Aug. 9.
Manitou—Aug. 9-10.
Rolling River—Aug. 18.
Toronto, Ont.—Aug. 28-Sept. 9.
Calgary—Sept. 4-6.
London, Ont.—Sept. 7-16.
Ottawa, Ont.—Sept. 11-23.
Morden—Sept. 27 and 28.
Lorne (Swan Lake)—Sept. 28.

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July 18th to 21st.

To introduce EMPRESS PURE INDIAN TEA to those who do not already know its good qualities, we will give to visitors at Brandon's Big Fair who purchase 5 lbs. of Empress Tea a good solid-back Clothes Brush. The tea will cost you \$1.75 (85c. a pound), and you buy it on the understanding that if Empress is not better than the tea you get elsewhere at 50c., it can be returned at our expense, and your money will be refunded.

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Fred Smith, Brandon.



Swift Current.

A representative of The Farmer was in this district lately and had the pleasure of seeing over some of the large sheep ranches and gaining a little insight into the way the sheep were handled. The comfortable ranch buildings of the Canadian Land & Ranching Company are located about one mile to the south of the town. An excellent photo of these buildings will be found on page 435 of this issue. We were fortunate in finding the manager, Mr. Alexander, at home, and he carefully explained the methods of work followed in raising sheep on the ranch.

The company have in all some 10,000 acres at this place. It is all uncultivated at present. They have about 12,000 head of old sheep running on pasture at present, but have had as many as three times that number. Of the 5,000 ewes kept for breeding about 3,000 are grade Oxfords, the balance being grade Cheviots. Both have given excellent results. To many it will be a surprise to learn that the Cheviots are doing so well. They have proven healthy, hardy and prolific breeders, though their stock do not attain quite the size of those from the Oxford grade ewes, being somewhat lighter in the bone.

Only pure-bred Oxford rams are used. About 100 of them were on the ranch at the time of our visit. They presented a fine appearance and many of them showed exceptional quality. Good stock must be the result where such a fine lot of sires are used.

During the winter the sheep run on the prairie in the day time and are put in sheds at night. We were assured by the manager that only 50 loads of hay had been fed to this large flock of sheep last winter. In fact, they were fed only during stormy weather, the rest of their food being picked up by themselves. During the summer they, of course, see no shelter from the elements, but are protected at night from the ravages of wolves. The simplest plan followed is to bunch them around the herder's tent. A safer plan frequently followed is to corral them in good wire corrals. However, there is very little danger if a lighted lantern is hung up on a stake; this, with the good dogs they have, reduces the loss from wolves to a minimum. In fact, Mr. Cameron, who has charge of the sheep, said there were more losses through young lambs falling into badger holes than from the wolves.

We were surprised at the few weak lambs found among so many hundreds of them. The increase last year was 100 per cent., this year it will only be about 90 per cent., the very late and inclement spring having caused the death of a large number of lambs through exposure.

Great care is exercised to prevent the pastures being swept by prairie fires. At the time of our visit the men were plowing a 50-mile fire guard. Enough teams are used to plow six furrows one after the other. The teams go right through the whole length of the guard. A wagon, with a cook, etc., accompanies them, and they camp where night finds them. Returning, six more furrows are plowed about 20 to 30 feet from those made going out. When the grass is dry the space between the guards is burned off, and thus a safeguard is made that amply protects the pasture land and secures winter pasture.

Maple Creek, Assa.

A trip through the Territories is all that is necessary to impress one with the magnitude to which the ranching industry may be developed. Around Maple Creek the conditions have been favorable and the district is becoming pretty well occupied. Horse, cattle and sheep ranches are all to be found. One of our representatives took a run through a little of the country south of here, where a number of the stock raisers are settled along the various creeks which flow northward down

from the Cypress Hills. As the attention of a number of the ranchers was occupied by the spring round-up, which started out on June 12th, we did not visit some of the places which would have been of interest to our readers. Amongst the ranchers there is getting to be quite an air of progressiveness along the line of breeding, and although there are still a lot of grade sires used, still the demand for the best blood is becoming much greater year by year, and already a great many are satisfied with nothing but registered sires. The marked effect which this movement is producing is quite noticeable in the im-

The Electric Riveter

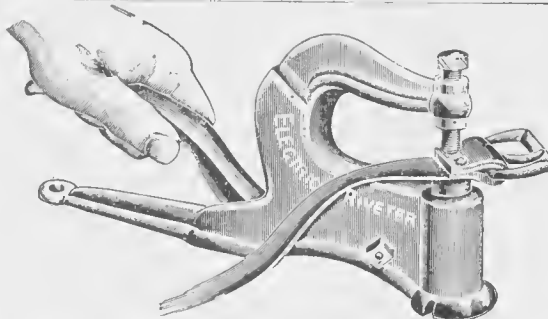
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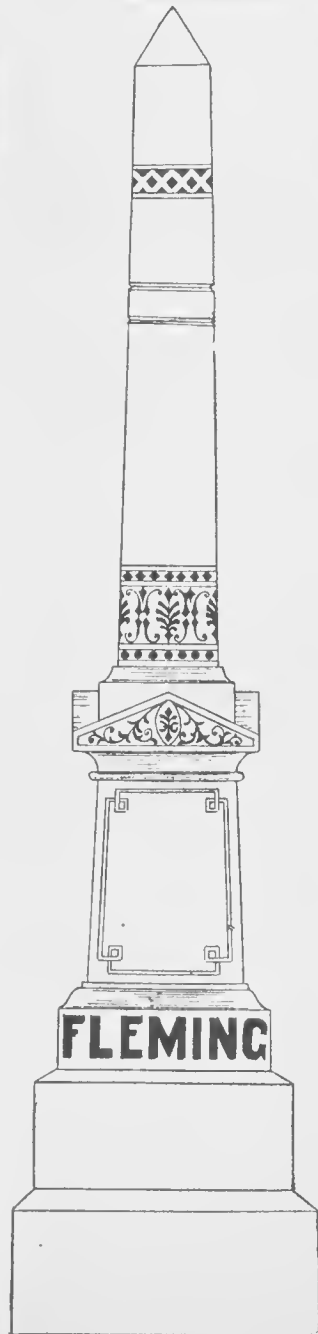
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See our Exhibits at the
Winnipeg and Brandon Exhibitions.



This Monument of Manitoba Granite, 25ft. 6in. in height, now in course of manufacture at our yards, and to be erected in Brandon Cemetery, season 1899.

proved young stock and will be much more conspicuous in years to come.

The weather this year, here as elsewhere, has been very wet and conducive to good grass-growing. The hay crop too, will likely be a good one.

The rapid incline of the streams which flow down from the hills has made it possible to do considerable in the way of irrigation, and a good many of the ranchers have small fields of wheat, oats and barley, while some few have raised good corn and a number are sowing small areas of Bromegrass. Almost all of them have good vegetable gardens. At the time of writing there has been no trouble with the hot winds which sometimes work disastrously with all cultivated vegetation. As the settlement thickens, the need of irrigation and raising green crops and grasses for hay will be more and more felt.

About three miles south of the town, and very prettily situated on a stream of the same name as the town, we came to the ranch of H. A. Greeley, M. L. A. Mr. Greeley is a member of the firm of Marsh & Greeley, which runs about 1,000 or 1,200 head of cattle on the ranges north of the town. Here we found a few head of Shorthorns running with the milch cows. Mr. Greeley has a nice field under irrigation and grows some few roots as well as grains and grasses.

John Stewart, close at hand, has an extra fine piece of Bromegrass, and last year had splendid success in corn raising.

H. H. Fanquier, a few miles east, on Hay Creek, is going quite extensively into Shorthorns, having now about twenty-five head. Some of his cows are extra nice ones, and, with good breeding and the care which Mr. Fanquier is able to give them, it is likely that he will soon have a very fine herd. A yearling bull recently purchased, and which was bred by W. R. Elliott, Hespeler, Ont., is a fine strong, even young fellow with an extra nice hide, and one which will be likely to help improve the herd. Mr. Fanquier has some good concrete and stone buildings now, but is putting up a good-sized cattle stable for the further accommodation of his stock.

F. W. Peacock has for some years been running a good-sized private dairy, keeping from 20 to 45 cows and supplying the C. P. R. hotel at Banff and filling other contracts.

Mose Elliott, just alongside of the town, as well as a few others, have good-sized dairy herds. Mr. Elliott uses a pedigreed Holstein bull and has a lot of cows which show a pretty good test.

There is a government creamery at this point, but the make has never been very large. The country is well enough adapted for dairying, but the trouble of milking and caring for herds of dairy cows has been so much greater than in looking after range cattle that the ranchers have not all taken very kindly to the business.

Messrs. Ross, Wood & Anderson, Strothers and others are also more or less into pure bred cattle.

Some of the horse bands run up to about 500 head, and most of the horsemen are doing very well. At the present time the mares are being held for breeding. The N.W.M.P., which have headquarters here, buy a few saddle horses, and a number of the ranchers keep both heavy and light stallions.

The sheep-raisers are mostly some little distance from town and are running flocks from a few hundred up to about 4,000 head.

When doing business with any of our advertisers, don't fail to let them know that you noticed their ad. in The Farmer.

Welwyn.

A flying trip through this district gave us a chance of looking around amongst two or three of the farmers. We found a number of new settlers, and a good deal of breaking being done this year. At the Messrs. Traquair's, well-known breeders of Polled Angus, we found them with their herd pretty well depleted by heavy selling. Then, too, they have been unfortunate in losing one or two head of their best cows. But those that are left are in the finest condition and will give a good account of themselves in whatever show rings they may appear this year. Their three-year-old bull, "Athelstane of Griswold," which last year took first and sweepstakes at Winnipeg, was sold this spring to B. A. Vanmater, of Millet, Alta., and is very much liked by his new owner. A six-months old bull, "Standard," by "Athelstane of Griswold," and out of "Birtle Belle," first prize cow at Winnipeg and Brandon last year, is a very neat, thick-set bloomy chap, which promises to develop into a pretty fine beast. A pair of yearling heifers, "Snowdrop" and "Charmer," are black beauties. This season they are building a large new barn, and then it is intended to go heavier than ever into the Polled Angus.

C. Ralph Collyer, close at hand, has a fine piggery, 50x26, with south sky lighting, raised sleeping places, feed boiler and a number of other latest improvements. Mr. Collyer is mostly into Berkshires, although he has one or two Yorkshire sows. "Welwyn Lad," his Berkshire boar, is a nice yearling and was bred by R. McKenzie, of High Bluff. A sow bred by T. A. Cox, of Brantford, is a pretty one. The cement floor used has given pretty good satisfaction so far. A 90-gallon boiler is used for cooking food, and Mr. Collyer finds that by using it he is able to feed all kinds of stuff and that weed seeds are all killed. A large batch of feed is cooked at once and lasts a good many days without fermenting. A nicely arranged hen house occupies one corner of the piggery. Mr. Collyer, also, is going lightly into Polled Angus and has a very fine cow and calf, the former having taken first place at Winnipeg.

A. McArthur has an extra nice Guernsey bull, and intends to go more extensively into this breed.

Minnedosa.

Amongst the worthy exhibits at the fair at Minnedosa last fall were those in vegetables and garden stuff, and a pleasing feature in connection therewith was that these exhibits were mostly made by farmers. One of our representatives paid a short visit recently to a few of the farmers south-east of the town, and was pleased to find amongst some of them quite an interest in that not unimportant adjunct to the farm—the garden. Some of these men have acquired a stock of practical knowledge along some lines which will be worth a good deal in years to come, not only to themselves, but also to those all about them. A number of apple and plum trees have been sold through here within the last year or two, but the experience of those who have dabbled in them has agreed pretty well with that of those in other parts of the West, and we predict a rather cold reception for the next agent who tries to talk a purchase of "iron-clads" into the farmers here.

But while larger fruit has not generally been a success, considerable has been done in the growing of small fruits. Henry and Francis Rose, about three miles east of the town, have each attained great success in the cultivation of red currants. They use Fay's Prolife and recommend them very highly as a currant perfectly suited to this climate. Each one of their places is well

sheltered on the north and west, and a number of trees at each farm helps to drift the snow over the small fruit. Francis is into currant raising rather the heavier of the two, and has sold upwards of one hundred pails yearly off perhaps three-eighths of an acre. The bushes are laid out about four or five feet apart each way, and are mulched very heavily with manure. By heavy mulching it is found that cultivation is easy and is not very much needed, at the same time the moisture is held, the roots of the bushes are protected and the ground is kept in good heart for heavy cropping. The Messrs. Rose find the Fay's Prolife extra good for the withstanding of both winter and summer frosts, having never been winter-killed nor yet lost their blossoms to any appreciable extent. In the matter of propagation it has been found that better success can be secured by layering them than by attempting to grow from the slip, as the latter develops so little root the first season that it is not apt to survive the first winter. By layering we mean bending a branch down, putting a little earth on it, and fastening it so that it takes root at some of the buds. In tame gooseberries, black currants and red raspberries the success has not been so great.

Arthur Beddome and Jos. Wylie have each very good large vegetable plots and raise considerable small fruit. Mr. Beddome is experimenting with the Wilson strawberry. Nearly all of the other farmers have nice small gardens, and it is a pleasure to see the success in a small way to which a few attain.

Cornwallis.

One of the best known men in this municipality is George Halse, on whose land part of the plowing of the Blyth society was done. We believe Mr. Halse took up the land he is now on as a homestead. He is well-known as a capable municipal accountant, having had a business training at Toronto before coming west. One feature of his farming was very soon brought out on the plowing day. The gang plows were put to work on his land and showed that the field had been rather liberally manured, that manure well-spread and only partially decayed. The field is a pretty large one. It came out that the manure had been drawn out the winter before last, direct from the stable, and spread in the rough, thus holding a lot of snow, which proved a special advantage. Not only was melted snow held in quantity, but the manure acted as a mulch, preventing evaporation till the land was plowed and sown in oats, which made a quick start and excellent crop.

Mr. Halse believes that manure is never worth more to land than when it is drawn from the stable, and when it is spread at the same time it is a great means to the retention of moisture. In seasons like last year's dry spring, this is a great point, as has been proven by the experience of other good men. To lay out rough manure in piles, as is sometimes done, we regard as very bad farming, because much of the virtue is left where the heap was and only rough straw elsewhere, while no good is got from the mulching supplied in the other case.

We have seen this straw burnt off before the plows were started!

This oat crop was smartly handled when put in, as little as possible of the moisture was lost, but was it rolled, and if not, what would have been the gain or loss caused by the rolling? We say roll, the heavier the roller the better.

The strawy part of the manure is now only half decayed, and should yet provide a considerable amount of vegetable matter for next year's crop of wheat. But we should like to ask Mr. Halse why that field was not put under wheat this year. Will not a lot of the nitrogen evolved by

the decay of that half-rotted manure go off in the atmosphere instead of being transferred by a growing crop into the owner's pocket? We think recently-manured land is not the sort most suitable for a summer fallow.

Mr. Halse sows on early done summer fallow about half the usual quantity of seed, which makes excellent pasture in summer and fall, the stock at the same time firming down next year's seed bed. This we do think excellent management, and it is done by some of our very best grain farmers with entire satisfaction. The only drawback is that the surface is apt to get difficult to seed, owing to the grain roots and the tramping, especially if the fall is wet. This has been overcome by disc seeding. On this last point we invite an expression of experiences.

The layout of Mr. Halse's fencing round his farm buildings is the best we have ever seen. The yard is roomy and a straw stack could be put there for cattle in winter, while from it wire-fenced lanes go out in every direction, giving the best of protection for the crops. No dogs are wanted when this plan is followed.

A group of cottonwoods — the plants brought from Nebraska — have made free growth, but they are the only samples from so far south that we have seen survive in fair vigor, and even they show dead wood in many instances. They furnish good shelter to a garden plot, well-stocked with fruit bushes. We noticed a group of vandals picnicing in the shelter of this grove and tearing off the fine trusses of lilac blossom that hung inside the fence. It is pretty cheeky to tear off big branches from a man's shrubbery within fifty yards of his own door, but some people are built that way.

An Up-to-Date Farm.

A little over two years ago W. E. H. Massey, president of the Massey-Harris Co., decided to establish a model and experimental farm in the vicinity of Toronto, and forthwith proceeded to acquire possession of various small market gardens and building lots on the outskirts of East Toronto, which he named Dentonia Park Farm. As may be readily conceived, no little time and trouble was expended in the fulfilment of this object, to say nothing of the money which changed hands over the transaction.

In making this purchase, Mr. Massey had a two-fold object. Firstly, he desired to provide necessary recreation away from the routine of business life, and secondly, to establish a farm for the conduct of experiments in scientific agriculture and stock raising, not only for his own personal edification and interest, but for the benefit of the farming community generally; and that this latter phase is appreciated by Canada's progressive farmers is evidenced by the numerous epistles and enquiries which Mr. Massey receives as to methods and appliances, etc., in the various departments of the institution.

The accompanying illustration conveys some idea of the character of a few of the buildings which have been specially erected under Mr. Massey's own personal supervision, all being designed by himself. It is of course impossible in the space at our disposal to describe in detail the various contrivances and ingenious devices with which the several buildings are equipped, but we will endeavor to give a cursory explanation of the most important methods which have been devised, and which may be of interest to our readers.

The central portion of the illustration shows the immense barn built on the side of a hill. This manner of construction admits of driving in onto each of the four floors of the building, which, as will be readily seen, is a very convenient arrangement. The barn is equipped throughout

with the most up-to-date appliances and machinery of every kind. Revolving funnels, which can be seen on the roof in the illustration of the barn, communicate with air ducts, by means of which a current of fresh air is conducted through a well-arranged system of pipes to the several floors below. An ample well provides a goodly supply of pure water, which is pumped by means of a windmill to a 5,000-gallon tank on the top of the building, from which pipes lead to all the stalls in the building. The barn proper is fitted with special hay carriers, admitting of the storage of hay and straw in every corner of the roof.

The farm buildings and residences are lighted by electricity produced on the spot, and at night time the little incandescent lights glimmer here and there about the place like so many fire flies.

The liquid from the various stables is drained to a cess-pit on one side of the barn yard, whence it is pumped to a sprinkler cart used for distributing it on the lands, thus ensuring cleanliness with the minimum of waste.

The view at the top left-hand corner of the picture shows the group of trout ponds of fresh running water, wherein many thousands of speckled beauties disport themselves. In connection with the fisheries department there is a thoroughly equipped hatchery, wherein from a quarter to half a million eggs are hatched each season. The fry from this hatchery are readily purchased by farmers and others throughout the Dominion, and make excellent stock for streams and ponds. The grown trout are retailed to local dealers at 50c. per lb.

The illustration next to that of the trout ponds shows the newly-built poultry and brooder houses and feed-runs in connection therewith. These departments are directly under the guidance and supervision of Frank R. Webber, formerly of Guelph, Ont., one of the best known poultry dealers in the Dominion. Here are to be found some handsome pens of White and Brown S. C. Leghorns, Banded Plymouth Rocks, Black Javas, White Langshans and Pekin Ducks. Hatching eggs are sold in season, 15 for \$2; or 30 for \$3.50.

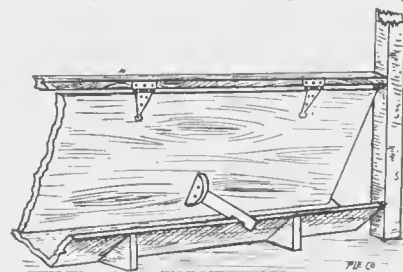
The stables on the ground floor of the barn are devoted to young animals or cattle which require fattening. On this floor, in specially constructed pens, ensuring cleanliness even in the home of the pig, Berkshire and Yorkshire swine are to be seen in small herds.

But perhaps the most attractive feature of all in connection with Dentonia Park Farm is the dairy cattle room, where two rows of splendid thoroughbred Jerseys are kept. Mr. Massey laid the foundation of this herd by selecting several excellent specimens from leading local dealers. These in themselves constituted a pretty collection of valuable animals, but not content with this, he imported direct from the Island of Jersey some fourteen head of the finest Jerseys that could be bought. The herd won the prize at the Toronto and London fall fairs last year, and many individual prizes have been won from time to time in competition with the best animals on the continent by individual members of the herd. Calves dropped from these cows receive a most ready sale, and are eagerly sought after by breeders throughout the Dominion who desire to improve the condition of their stock.

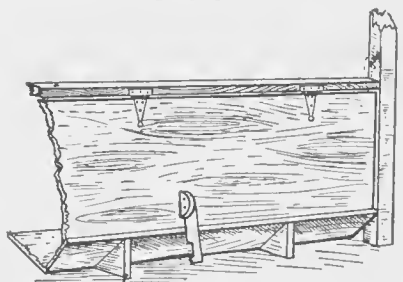
But one cannot mention the Dentonia herd without referring to the milk and separator room in the barn. This department is in charge of an expert dairymaid, and the word cleanliness best describes the condition and appearance of the place. Everything is in the most apple-pie order, and the greatest care is taken in handling the milk and butter. The bottles in which the milk is delivered to customers are cleansed by means of a steam sterilizer, thus ensuring perfect cleanliness. Visitors are welcome at the farm any day except Sunday.

Handy Arrangement for Pig Feeding.

There have been various schemes for arranging the feeding apparatus of pigs, but the accompanying plan, used by Geo. Little, Neepawa, is about as good as any:



The handiness of this scheme is what recommends it. With his foot the feeder shoves the swinging partition back until



it catches. After emptying the feed, he lifts the catch with his toe and the partition swings back. It is so simple that anyone can make it.

A Wages Dispute.

At Carman the other day a case was decided by a local magistrate that is worth noting elsewhere. A hired man sued for wages. The local paper reports: "The plaintiff claimed that he hired for seven months at \$20 per month. The employer claimed that the hiring was for seven months at \$14. After working one month and eight and a half days the man objected to working the hours and asked his employer if he intended to continue their length. The master answered certainly. The man then refused to work any longer, and told his employer to get another man in his place. He said all right and gave the man a statement showing a balance in his favor of \$14.54. Then the man demanded settlement, but the master objected to paying him until the expiration of the term of engagement and in case higher wages had to be paid would keep it off him. This the man would not agree to, and brought suit. The magistrate held that defendant had discharged the plaintiff by giving him a statement of his time, and thereby debarred himself from any action he might have against plaintiff because of desertion of employment, and that plaintiff was duly entitled to recover the amount of wages as per statement. Judgment was rendered accordingly for full amount and costs."

If this is a correct statement of the merits of the case it is worth making a note of both by employer and employed. In this country it is difficult for either man or master to know the quality of the other party to the contract, and such differences are bound to arise. The man may be a duffer or dishonest, the master a slave-driver, and in such cases it is the least of two evils to part as soon as they can. But the master who wants to hold the wages of a hired man, after they have decided to part, has no ground in law or common sense for his course.

Calgary.

About Calgary not only are there a good many fine ranches, but also a number who are mixing up stock-raising with a good deal of farming. The crops around here this season have been a little late up to the time of writing. The Springbank settlement is one which has quite a crop of oats sown this year. The numerous rivers and streams make good water supply for stock throughout the entire district, while their rapidity makes irrigation systems possible in a number of places.

There are several breeders of pure-bred stock within reach of the city, but up to time of writing our representative has been able to visit only one of their places. We refer to the large band of Hackneys owned by Rawlinson Bros., 10 or 12 miles northwest of here. These gentlemen have been breeding Hackneys for a number of years and have now about 300 head of very nice stock. They keep about 60 or 80 breeding mares, including quite a large number of registered Hackney and trotting stock—some of them imported. This season there has been very good success in colt-raising, only one colt being lost out of the whole bunch. Three stallions are kept for use. The oldest, Robin Adair, 9 years old, is a chestnut, 16 hands high, with a fine clear-cut head, showing intelligence and force, a beautifully-formed lengthy neck, deep chest, very large heart girth, finely rounded barrel, a well-coupled back, and thick quarters. He is set upon splendid limbs and shows lots of life and action. He was imported as a yearling, having taken 4th place at the London (Eng.) Hackney show. He was sired by that noted horse, Rufus, and shows a long line of good blood. In weight he runs about 1,450 lbs. This horse is really one of the finest specimens of the Hackney breed we have ever seen, and is a hard one to beat. He is also a horse with strong prepotency and impresses his character upon his get. The Puritan is a 4-year-old, imported also as a yearling. He is a bay with black points, without white. He is of somewhat lighter build than Robin Adair, but very peacocky and an extra showy specimen of the breed.

Crowfoot is a home-raised 3-year-old stallion by Robin Adair, out of an imported Hackney mare, Fimber Pride. He is a fine large horse of bay color and built on much the same lines as the sire. Altogether, we must congratulate the brothers who have had such success in horse-raising.

We will probably give some further notes from this district in a later issue.

Medicine Hat.

The ranching business about here is just young as yet, but that it is fast extending is evidenced by the large increase in the exports of stock in the last year or two over preceding seasons. Some idea of the business done within the last year may be gathered from the fact that the estimate of the value of exports for the year 1898 has been put at \$15,000 per month. During the month of May, 1899, there were about 5,000 stockers brought into the district and distributed over the ranches.

This importation of "dogies," as the ranchers call them, has been quite extensive, but, if we predict rightly, there will in future be more discrimination in purchasing, as it is being found that keeping scrubs pays no better here than anywhere else. Not only are they less thrifty after getting on to the range, but there is more likely to be loss in bringing in. More particularly is this the case when the man in charge of the stock is an inexperienced man. As we heard it put, "'dogie' men and 'dogie' cattle make a poor combination." It is likely also that most of the

stockers will be brought in in the spring hereafter, as there is sometimes some trouble in getting them to keep out on the range and away from the buildings the first winter, when brought in the fall. More particularly are they apt to hang about if not along with any range-raised stock. The latter generally help to lead them off. The range-raised steer is almost always ready for market a year younger, as he gets a better chance through sucking the cow the first season.

The season this year has been a very good one, and very little loss in the crop of calves has been experienced. The winter was mostly favorable, there being no crust on the snow all winter, but one or two late spring storms worked disastrously with the stock.

The ranchers here divide their attention pretty well between horses, cattle and sheep, with the most into cattle. A few are going into breeding pure-blooded stock. James Hargrave, near Walsh, has a nice herd of Shorthorns. A herd of Galloways at Stair, owned by the Canada Land and Ranch Co., is a very large one, and this breed is quite in favor about here amongst a number of the ranchers. The ranchers are more thickly settled south of the town, and a run up Plume Creek brought us to some nice bands, herds and flocks. North of here about fifty miles, on the Red Deer river, Gordon, Ironsides & Fares have about 5,000 head. A nice bunch of pedigree Herefords, bought from W. Sharman, of Souris, were just brought in by T. W. Palmer. Approximately speaking, it is estimated that twenty-five new ranchers have come into the district lately, and we predict quite an increase for some time to come.

Wolseley Creamery.

Your correspondent had the pleasure of a visit through this institution, in company with Mr. Bulyea, Commissioner of Agriculture for the Territories. We found everything in ship-shape and the buttermilk as good as any in the land. The creamery is not so well patronized this year as the past two years, owing chiefly to the fact that a skimming station, 12 miles south, is not in operation this season. Mr. Dargale, the butter-maker, informed us that the make only went about 500 lbs. per week.

File Hills.

The first agricultural and arts exhibition ever made by Indians was held at the File Hills Indian agency, 20 miles northeast of Qu'Appelle, on June 22. It was only for Indians of the four reserves comprising the File Hills agency. It is the first thing of the kind held in the Territories and was a gratifying success, largely through the efforts of W. M. Graham, the resident agent.

The prize list comprised work horses, brood mares, yearling and 2-year-old colts, saddle and driving horses. Cattle comprised pure-bred Shorthorn and Galloway bulls, grade stock and milch cows. Sheep, poultry, dairy produce, domestic manufactures and fancy work were also shown, and there was keen competition all through.

In fact, some of the stock would do credit to any country show, the poultry being evidently from good foundation stock. Prizes were given to those showing greatest improvement within the last year. In fancy work the exhibit was very gratifying, with little education of any kind they showed such splendid work. No money prizes were given. The prize articles were given by merchants and residents of the district, and from subscriptions collected by the agent. Massey-Harris Co. gave a cultiva-

tor for the best kept premises. We hope next year the government will give assistance to so worthy a cause.

Plowing Matches.

OAK LAKE.

Owing to the wet weather the number of competitors who actually came on the ground was only 15. The land, though otherwise good, was too wet and the plows did not clean. One competitor was only eight years old, but did not finish in time and was therefore disqualified from taking the prize he should have had. At the finish, on the call of President Arsenault, addresses were given by T. C. Norris, M.P.P., A. Fenwick, Alexander; Robt. Hall, Griswold, and Reeve Chisholm.

The awards were as follows:—

14-inch Walking Plow.—1, Jas. Sutherland, Brandon; 2, Jas. Goodwin, Oak Lake; 3, Jas. Cory, Brandon; 4, Jas. Gillespie, Oak Lake.

16-inch Walking Plows.—1, John Redden; 2, E. Allen.

Gang Plows.—1, Robt. Somerville; 2, H. Gillespie, Oak Lake.

Young Men under 21.—1, D.A. Goodwin, Oak Lake; 2, B. Sturgeon; 3, A. Walton; 4, Ralph Helliwell, Oak Lake.

Boys under 16.—1, Leslie Wisner, Oak Lake; 2, John Johnson; 3, P. Hatch.

Best Plowed Acre.—James Sutherland; best ridge, J. Sutherland; best finish, L. Wisner.

Oldest Plowman.—J. Gillespie; youngest—L. Wisner.

Judges.—A. T. Elder, Rounthwaite; T. Jasper, Bradwardine; and H. Buck, Virden.

WAWANESA.

The third annual competition for this district was held on the farm of John McKenzie, 15, 7, 17, on June 23. The day was fine, with many visitors, and great interest was taken in the quality of the work. The following are the prize-winners:—

Class I.—Open to all, walking plow: 1, George Charleson, 95 points, \$20; 2, Wm. Cory, 92 points, \$10; 3, Wm. T. Elder, 87 points, \$5.

Class II.—Open to all, except first and second prize winners, walking plow: 1, F. W. Doubt, 91 points, \$22; 2, R. Tran, 72 points, \$10; 3, H. Payne, 71 points, \$5.

Class III.—Walking plow, three horses: 1, Willow Elder, 90 points, \$22.

Class IV.—Open to boys, 17 years and under, who have not taken first prize at any plowing match in Manitoba: 1, George Elder, 55 points, \$20; 2, C. McCulloch, 48 points, \$10; 3, W. H. McArthur, 44 points, \$5.

Class V.—Gang plows: 1, Jas. M. Ross, 60 points, \$25; 2, D. Foster, 52 points, \$10; 3, William McCulloch, 48 points, \$5.

Special.—For best groomed and harnessed team competing in any class, to be the property of the competitor or his employer, W. T. Elder.

Sweepstakes.—To the best plowman competing in match; the trophy to be placed on exhibition in a suitable place to be named by the winner and approved by the directors of the Institute until won by the same competitor at three successive matches, cup value, \$40, presented by F. O. Fowler, M.P.P.: George Charleson. In awarding the cup to Mr. Charleson, the judge said that the contest was very close between him and Mr. Cory, last year's winner.

We had hoped to be able to give in this issue accounts of the matches held at Hamiota, Virden and Bradwardine. Representatives of The Farmer were to have been present at all these matches, but up to the hour of going to press no reports have come in. They will appear in July 20th issue.

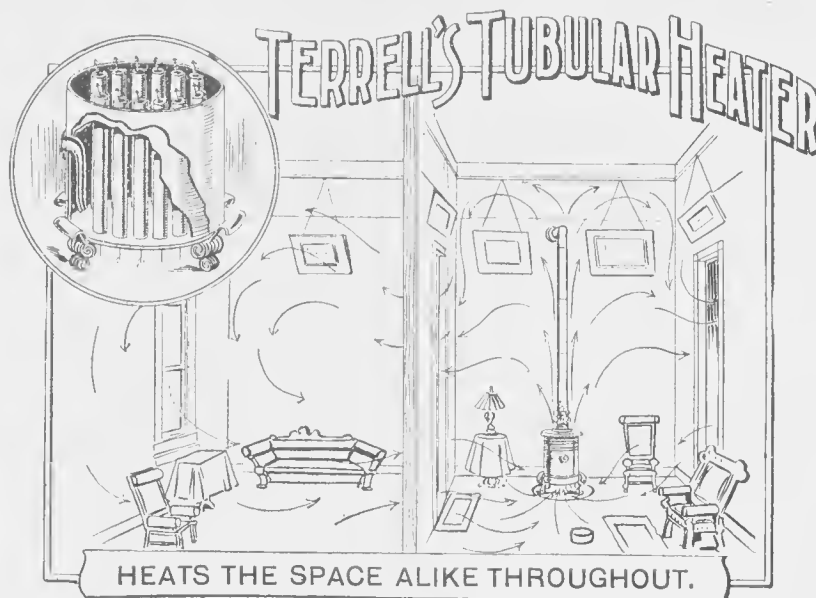
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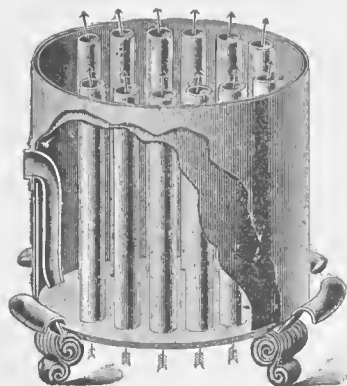
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Circulation Distributes the Heat.

The cooler air taken from the floor through the tubes is replaced by the warmer air from the upper part of the rooms. This change is constant. The rooms are heated alike throughout. By actual test in heating three rooms with a Terrell's Tubular Heater, the greatest variation of temperature in the different rooms was but two degrees.



"The body radiates as much heat as any stove of its size."

DRAFT AIR SUPPLIED HOT.

The Hot Blast Draft Tube in Terrell's Tubular Heaters supplies air to the fire, heated to a degree that insures perfect combustion.

FIRE EASY TO CONTROL.

With the screw damper set to allow the proper amount of draft, no further attention is required for hours. A smaller fire under perfect control and burning steadily is much more satisfactory and economical than a stove red-hot at intervals.

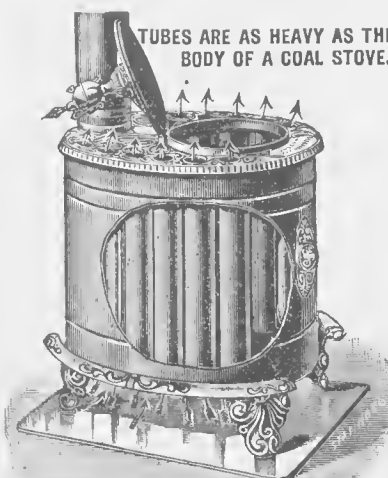
WILL KEEP FIRE.

Terrell's Tubular Heaters are air-tight. It is not uncommon for them to keep fire without attention for a period of two or three days.



"The Hot Blast Draft Tube and Damper."

TUBES ARE AS HEAVY AS THE BODY OF A COAL STOVE.



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CLEAN TO USE.

They do not smoke. The pressure of air from outside is equal on all parts of the opening.

TERRELL'S TUBULAR WOOD HEATER.

Is made with ornamented cast top, nicked foot rails, and heavy sheet iron body and bottom. The linings at each end are heavy sheet iron.

TUBES.

The part nearest the fire is as heavy as the body of a Coal Stove, while the back of the tube is lighter iron.

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The fuel is burned so closely in Terrell's Tubular Heaters that it is seldom necessary to remove the ashes oftener than **once a month**.

TERRELL'S TUBULAR HEATERS guaranteed entirely satisfactory.



"The part nearest the fire is as heavy as the body of a Coal Stove."

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MONTREAL.

WINNIPEG.

The Rocky Mountain Locust.

In last issue it was stated that a fuller account of the Rocky Mountain locusts would be given in this one. It is just as well to know the whole life history of these wonderful insects, so we will take our readers back to last fall when the full-grown locusts of last year were depositing their eggs. The locusts show considerable wisdom in choosing the right place in which to lay their eggs. They always choose the slopes of the little ridges or hollows made by harrow teeth or the drill hoes, facing the south, so that the sun will warm up the soil and hatch the eggs early.

The female opens up a hole in the ground, generally in last year's stubble field where they have been working, with the rear end of her body, which is furnished with an apparatus for this purpose. A hole or tube is made more than an inch deep and in the lower end of this the eggs are deposited. Each group of eggs consists of four rows side by side, carefully packed in, and about seven eggs in each row. The whole is surrounded with a soft substance forming a pouch that holds them together, but hardens on exposure. Along one side of the bundle or pouch of eggs is a tube connecting with the end of each egg; this is to allow the young locust to escape should one of the eggs in the middle of the bundle hatch out first. When the eggs are laid the locust covers up the entrance to the hole with a frothy substance, and so cleverly is this done that it is almost impossible to find it. Each locust lays on an average three of these egg-masses or egg-pods, at about two weeks apart, thus taking from four to six weeks to accomplish the laying.

When the young locusts are hatched out in the spring they push their way to the top of the tube and out through the covering to the surface. Here they undergo quite a number of changes. At first they are very small and weak, but grow rapidly, and soon get too big for their hard casing. This is finally burst and then cast off, a larger one growing to take its place. This is repeated five or six times until the mature insect with wings is formed. The young fellows first hatched have no wings. The mature locust is characterized by a very large head. The wings are the same length as the body. By these two peculiarities it is easy to distinguish them from other grasshoppers.

The eggs being deposited in the first inch of soil and with a tube through which to work their way to the top, gives man a chance to destroy them. If land containing eggs is plowed six inches deep and those egg-pods turned upside down the young locusts will never find their way out. They have no strength to work to the top, and if they had they don't start to the top, but in the direction the egg-pod gives them, as they have to come out through the tube prepared for them. Plowing down land in which they have laid their eggs attacks them in the weakest place in their round of life and the easiest way for man to get rid of them.

Even after it has escaped that possibility of destruction, the young locusts may be killed in great numbers the following spring after they are hatched out. We pointed out that the advice of Professor Fletcher was to plow the summer fallows as early as possible. The young hoppers are small and cannot jump far. By starting round the outside of the fields with five or six teams following each other closely, the hoppers are driven into the centre and a border put round them that they cannot jump over. If this is continued there will soon be such a broad strip of plowed ground around them that it will be impossible for them to get over it. Of course, the older the hoppers get the easier

it will be for them to escape. By continuing the plowing to the centre of the field the young locusts can be all plowed down and thus killed, or straw can be spread among them and burned off.

If they have got into growing grain other methods will have to be resorted to in order to get rid of them. One of the most satisfactory ways is to use what is called a "hopper doser." There are several styles of them, but the following is a description of one that answers well. A pan of galvanized iron or similar material is made, 12 to 18 inches wide, 3 inches deep, and 10 to 12 feet long. Three or four cross divisions are put in it to prevent the oil splashing around and spilling over. Runners are made for the pan, extending a foot behind and two feet in front; two inch strips of wood join the runners, and on top of these the pan is fastened. A screen of canvas 3 feet high is fastened up at the back of the pan with lath. Ropes are fastened to the outside runners to draw it by, and a cord stretched loosely across the runners serves to raise the young hoppers, and they are caught in the pan or against the screen and thrown back in the pan. The pan is half-filled with coal oil, some use crude petroleum, and the screen should be soaked with it also. The least touch of coal oil seems to be fatal to them. It spreads all over the body if only a foot is put into the oil. So, even if the young locusts jump into the pan and out again, it is all up with them and what are caught in the pan represents only about one-tenth of what will be killed. It requires rather level ground to work the hopper doser successfully, as the oil is destructive to plants. When the hopper gets full it must be emptied and fresh oil put in.

Where the ground is rough the balloon catcher can be used. This is a big funnel drawn on runners close to the ground, and when the hoppers jump up they jump into this and are driven back into a bag, which is tied up when full and the young fellows destroyed. Several hopper dosers drawn side by side, or several balloon catchers, will soon cover a field and destroy many millions of young locusts. It is hoped that our farmers may never have to resort to such measures to save their crops.

Insect parasites are numerous among the locusts at Deloraine and last year did good work in exterminating them. They are also at work this year. The principal enemies are the little red mites, which can often be seen on them, the trachina fly, much like a horse fly, the flesh fly and a bee fly. These enemies often do more effective work than man. Heavy dashing rains also kill many of the young locusts. This season's developments will be watched with interest by all the province and with considerable anxiety by those more directly interested.

A Forecast of the Future.

That the phenomenal progress which has been made by Western Canada within the last two decades has been viewed with open-mouthed wonder by other peoples is a statement which requires no comment or proof. Even as we write the eyes of other nations and provinces are watching with interest the doings of a country which, by its sudden development seems to prove that a nation may be born in a day. To our own people the improvement in our large farms alone brings out in an almost startling way the suddenness of the growth of our country.

But let us leave the retrospective for others to gaze upon and peer into the hazy future. The further we comprehend the

vast extent of Northwestern Canada, the more we learn of its richness in soil and herbage; the further we navigate its water systems, the more thoroughly we prospect its deposits of coal and other minerals, the more convincing becomes the evidence that there is a great future in store for us.

Too often those of the thicker settlements feel as though we are already nearing the point of crowding. Is it so? Let us see. In Manitoba alone, which now contains something like 35,000 farmers, a recent estimate gives us ten million acres of land which have never been cultivated! But, if we have not yet begun to occupy this province as we might, how much less the Territories! Indeed, it has been estimated that "the lands watered by the large rivers are extensive and fertile enough to sustain a population of 50,000,000 people, or ten times the present population of Canada." This calculation may be to quite an extent Utopian, but true it is that no thinking man can travel over the vast unoccupied areas of the West and not be impressed with the extent of its unmeasured possibilities.

What will be some of the results which will attend further settlement? In the first place it will demand more extensive and better transportation facilities than we at present enjoy. The fuller settlement of at present sparsely occupied tracts will attract and force new lines of railway and a great many communities which are now removed from the sound of the puff of the locomotive will be enjoying the advantages which are at present denied them. Not only that, but more frequent trains, better accommodations and lessened rates must eventually be forthcoming.

Then, as the cities and towns expand, our manufacturing industries will be enlarged and increased and a number of our present imports will be home-supplied, the home markets will be enlarged, and we will become less dependent for our needs upon other peoples. Then, too, we hope that many articles which are now so expensive will become much reduced in price.

These changes will be accompanied by a lessening of the isolation which now characterizes life on many parts of the prairie, and by greater educational, religious and social advantages at less *per capita* expenditure. Then, as settlement becomes more dense, there must necessarily be a development of many of the unused resources which are at present little valued. Take it in the ranching districts, for instance. Just how much may be accomplished by a development of irrigation systems nobody as yet knows. If ever we come to use our rivers and streams to water the vast pastures of the West, there is no doubt that the productive capacities of our lands will be very greatly enlarged and their values enhanced. Gradually, all over we will learn other methods than those at present employed to increase the fruitfulness of our lands and at the same time to conserve their wealth.

This forecast is no dream. As the vast unoccupied stretches of country along the Saskatchewan and Peace rivers and in the one thousand and one other places become occupied; as the mineral resources of the Rockies to the west and northwest of us become developed, and as the neglected acres of our thicker settlements become occupied these things must see fulfilment. Surely the horizon of our future is bright with promise.

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We Fit Spectacles Scientifically

ALL ERRORS OF REFRACTION PROPERLY
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Come, or write to us if your
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The Best Watch on Earth

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WHOLESALE AND RETAIL

424 AND 584 MAIN STREET.

JEWELLER.

SOUTH STORE NEW MCINTYRE BLOCK.

NORTH STORE CORNER MAIN AND ALEXANDER.



Among the Breeders.

R. McKenzie, High Bluff, Man., writes: "I have just shipped a fine pair of pigs to William Wingrove, Edmonton, Alta., and another pair to T. W. Wilson, Glenella, Man. I have a number of orders to fill next month."

It has finally been decided that the next Ontario Provincial Fat Stock and Dairy Show will be held in London, Ont., Dec. 12th, 13th, 14th and 15th. The prize list is now in the course of preparation and will be issued at an early date.

The last and certainly not the smallest priced sale of Shorthorns in the State of Indiana took place on June 14, on the farm of W. T. Miller, Winchester. One cow went to \$805, a lady forcing the bidding up to that point. Of the 21 head sold, 18 were females which averaged \$270. The three bulls averaged \$250.

W. L. Trann, Crystal City, has sold from his Boundary herd of Poland Chinas, boars to Jas. Turris, Eaton; Thos. Stone, Clearwater; J. P. Smith, Crystal City; John Stepler, Winkler. Sows to Fleming Bros., Pilot Mound; John Stepler, Winkler; Sam Cotter, Crystal City, Man.; and to Jas. Milne, and Thos. Spiller, Byron, N.D. Sows in pig to John Fyfe, Snowflake, Man., and J. A. Hazlett, Woodbridge, N.D. He has nine sows to farrow in July and August. He has two grand November boars, 250 lbs. weight, and breeds from matured stock.

W. D. Flatt, Hamilton, Ont., writes: "I arrived in Quebec on the 15th with 23 head of Shorthorns from Great Britain, consisting of five bulls and 18 cows and heifers. This lot, I am told, compares well with any importation which has been made. Also brought over nine Yorkshire pigs for D. C. Flatt. I now have a herd of over 100 Shorthorns and do think that my herd on the whole stands amongst the best. The bulls which I have to offer are an exceedingly good lot, in fact, good enough to win in strong company. Prices in Great Britain are very high and cattle hard to purchase. \$1,000 there is considered moderate for good things."

Thos. Gosney, Miami, writes: "All my pigs came through the winter in good shape. My three brood sows gave me a return of 30 strong pigs. Moss Rose farrowed 12, Miami Lily 10, Naney Lee 8, inside of one year Moss Rose has farrowed 32 live pigs and not a runt among them. Miami Lily had 34, all correct. There has been a good demand for pigs this spring. I have sold to R. C. Bayliss, Wakeham, Man., two sows to Jas. Parker, Morden; W. J. Duncalf, Miami; Robert Curtis, Miami; Leonard Hunt, Miami; Mrs. W. Fry, Miami; one sow each. To R. D. Pritchard, Roland, and W. Montgomery, Miami, one boar each, besides other sales in view. I find it pays to advertise in The Nor'-West Farmer. It should go into every farmer's house in the country, and the poorer he is the more he needs it, as it will save him many a dollar and lots of hard work."

J. E. Marples, Deleau, Man., reports having purchased the following Herefords from Wm. Sharman, Souris:—Relic 2nd (imp.) 538, bred by John Hill, Felhampton Court, Church Stretton, England, and bull calf; Milly, 22545, imported by Sir Donald Smith, bred by T. Rogers, The Field, Hereford, England, sire Lord Grey de Radcliffe Wilton (8839), dam Old Trick, 22538, and heifer calf; Gaylass, 557, sire Prince Grant (479), dam Gem 26th (imp.) (552), and heifer calf; Countess 12th (558) sire Tom Wilton (464), dam Countess 10th (imp.), (202), and bull calf; Lovely Wilton, 664, sire Tom Wilton, dam Lovely 9th, 650, by President Grant (imp.) and heifer calf; Constance of Ridgewood, 691, sire Senator, 480, dam Constance 15th (imp.);

Constance of Breezelawn, 763, sire Jovial, 476 dam Constance 15th (imp.), and heifer calf; Countess of Ridgewood, 766, sire Cronkhill Chief, 490, dam Countess Wilton 2nd, and bull calf; Countess of Aberdeen, 765, sire Cronkhill Chief, grand-dam Countess 10th (imp.), and bull calf; Julia of Ridgewood, 924, sire Cronkhill Chief, dam Belle of Felhampton (imp.); Peach, 912, sire Wilton Hillhurst, dam Cottage Lass (imp.); Flossie, 923, sire Wilton Hillhurst, dam Nelly, by Duke of Hereford (imp.), Westhyde (imp.), and heifer calf; Madge, 918, sire Wilton Hillhurst, dam Milly (imp.), 489; Isabel 1170, sire Cronkhill Chief, dam Belle of Felhampton (imp.); Lady Marjorie, 1174; My Valentine, 1175; Jewel of Ridgewood, 1385. In all there are 26 head and include all Mr. Sharman's best prize-winners, which were bought at a top figure. These added to Mr. Marples' now excellent herd, make it about the best and largest herd of Herefords in Canada. He has also a new young stock bull to arrive in a few days, the pick of the bull calves of H. D. Smith's famous Ingleside herd, Compton, Que., sired by his Corrector bull, Sir Horace.

Machine Notes.

A very interesting appeal case has just been decided by the full court in the appeal case, "Bank of Hamilton vs. Gillies." Gillies and two others had bought binders, for which promissory notes were given and then transferred to the bank. As an innocent holder, which means that the bank itself knew nothing about why the notes were given, the bank could have sued successfully on a purely promissory note. But the solicitors for the defendant, Messrs. Howell & Mathers, set up the defence that the documents were not promissory notes at all, but mere agreements, and consequently as they contained a provision that the property in the machines should not pass to the purchasers until the price was paid, or, in other words, that they were what are called "lien notes," that therefore the bank was in no better position than the original payees. The cases were tried before Judge Prendergast and a jury at Stonewall. The jury decided that the machine did not come up to the warranty given when it was purchased, and that the purchaser got no value, as the machine was really worthless. Judge Prendergast, however, decided that the documents founded on were good promissory notes, and that the defence set up was not good against the bank. On this ground he gave his decision against the purchasers in each case in favor of the bank.

The defendants' solicitors then appealed to the full Court of Queen's Bench, consisting of three judges, and the point they urged was, as in the court below, that the documents sued on were not negotiable promissory notes, but agreements, and were in the hands of the bank subject to all the equities that might be set up against the original payee. The plaintiff, it was contended, had therefore taken these notes subject to all the equities and terms between the original parties, and the jury having found that the machines were worthless, the defendants were entitled to succeed.

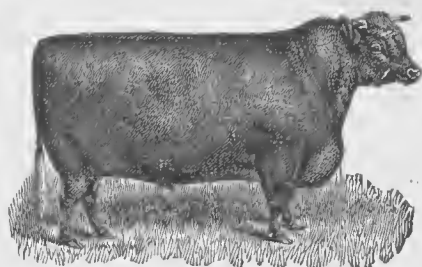
The court were unanimous in holding that the documents sued on were not promissory notes, as they contained stipulations that the title to the property for which they were given should not pass from the vendors until the whole of the purchase price was paid, and that should the vendee sell his homestead, payment should be due at once. This made the documents non-negotiable by endorsement and any one taking them did so subject to all the rights and equities of the original parties. The appeal was allowed with costs, and a non-suit entered with costs.



HEREFORDS

Stock of all ages for sale.

J. E. MARPLES, Deleau, Man.



A FEW CHOICE SHORTHORN HEIFERS

For sale by Aberdeen, due to calve in August to 1st prize bull in Winnipeg, 1898. My herd has been tested for tuberculosis, and every purchaser can have a written guarantee with each animal. See my cattle at the Brandon Show. Young Stock always for sale.

WM. CHALMERS, Hayfield, Man.



HACKNEYS FOR SALE.

A number of well broken single drivers and teams with one, two and three crosses of Hackney blood. Also several Hackney Stallions, pure bred and registered. Can also supply yearling Hackney Stallions with three crosses (unregistered).

RAWLINSON BROS., Box 20, Calgary, Alta.

DO NOT FAIL

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SHOWROOM:

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WATT & ALBERT.

MANITOBA FARM LAND FOR SALE!

In MUNICIPALITY OF SPRINGFIELD which adjoins the City of Winnipeg.

The Municipality of Springfield adjoins the City of Winnipeg to the east. The land naturally was not so high, nor as easily brought under cultivation, as in some districts further west, but the extensive system of drainage and road making practised by the municipality for years past has altered the face of nature and made this district one of the most desirable farming sections in Manitoba, and as all the land is within driving distance of a city of 50,000 people whose population and wants are rapidly increasing, farmers can always be sure of obtaining the very highest price for all products. This advantage over local markets on the small products of a farm, will, in a few years, pay for the land.

Sir William Van Horne, President of the Canadian Pacific Railway Company, seeing the advantages of this district, has just completed the purchase of about five thousand acres adjoining some of these lands, and is now at work making extensive improvements. We have twenty-five thousand acres for sale in this municipality at prices from one to six dollars per acre, one tenth cash, and the balance in nine equal annual payments, seven per cent. interest. Much of the land is equal to anything in the province, and all of it within ten miles of railway or driving distance of the City of Winnipeg, plenty of timber, good water everywhere. The land and prices are as follows:

DESCRIPTION.	Section.	Township.	Range.	Acres.	Price.	DESCRIPTION.	Section.	Township.	Range.	Acres.	Price.
N hf of NE qr	2	10	4	80	640 00	N hf NE qr & NW qr	36	11	7	240	600 00
N hf S hf L.S.D. 9, 10	12	12	4	20	\$50 00	N hf NW qr & S W qr	12	12	7	240	440 00
SE qr 10 & N hf NE qr (adjoining the Van Horne farm)	3	13	5	240	960 00	E hf SE qr	4	12	7	80	240 00
SW qr & S hf NW qr	2	13	5	240	\$1200	SE qr	14	12	7	160	320 00
S hf S hf L.S.D. 9, 10	7	12	5	20	50 00	S hf NE qr	19	12	7	80	80 00
S hf N hf L.S.D. 15, 16	7	12	5	20	50 00	W hf SE qr	19	12	7	80	80 00
E hf L. S. D. 14 & N hf NE qr	4	12	5	100	250 00	NW qr	20	12	7	160	400 00
E hf W hf L. S. D. 4, 5	4	12	5	20	50 00	L. S. D. 1, 7, 8 in	20	12	7	120	400 00
W hf NE qr	9	12	5	80	200 00	L. S. D. 2 in	20	12	7	40	400 00
NW qr	9	12	5	160	400 00	SE qr & S hf NE qr	21	12	7	240	240 00
S hf S hf L. S. D. 11, 12	28	12	5	20	50 00	N hf NE qr & SE qr	27	12	7	240	480 00
NE qr & N hf SE qr	35	12	5	240	960 00	NE qr	28	12	7	160	320 00
NW qr & W hf NE qr	12	12	6	240	720 00	SW qr & S hf NW qr	5	11	7	240	600 00
NE qr & S hf NW qr	24	12	6	240	720 00	SW qr & S hf NW qr	6	11	7	240	600 00
NE qr 28 & W hf NW qr	27	12	6	240	720 00	SE qr & S hf NE qr	6	11	7	240	600 00
W hf SW qr	31	12	6	80	280 00	SW qr 10 & E hf SE qr	9	12	7	240	600 00
N hf NE qr	2	11	6	80	120 00	NE qr & N hf SE qr	13	12	7	240	720 00
L. S. D. 3, 4 and S hf 5, 6	9	11	6	120	360 00	NW qr & N hf SW qr	30	12	7	240	360 00
SW qr	24	11	6	160	480 00	NE qr & N hf SE qr	31	12	7	240	600 00
S hf NE qr	30	11	6	80	240 00	S hf SE qr	33	12	7	80	160 00
N hf N hf L. S. D. 5, 6	13	12	6	20	50 00	NE qr	30	10	8	160	160 00
N hf S hf L. S. D. 13, 14	20	12	6	20	50 00	SW qr	2	11	8	160	160 00
N hf S hf L. S. D. 9, 10	30	12	6	20	50 00	L. S. D. 11 & S hf 12	2	11	8	60	60 00
N hf S hf L. S. D. 3, 4	30	12	6	20	50 00	S hf SE qr	4	11	8	80	80 00
W hf NE qr	31	12	6	80	200 00	SW qr	4	11	8	160	160 00
SW qr & S hf NW qr	2	13	6	240	600 00	SW qr	7	11	8	160	160 00
SW qr 21 & N hf NW qr (adjoining the Van Horne farm)	16	13	6	240	720 00	NE qr	10	11	8	160	160 00
SE qr & S hf NE qr (adjoining the Van Horne farm)	6	13	6	240	720 00	N hf NW qr & NE qr	5	11	8	240	240 00
N hf S hf L. S. D. 7, 8	5	10	7	20	50 00	N hf NW qr & SW qr	6	11	8	240	240 00
SE qr & S hf NE qr	4	11	7	240	360 00	N hf NW qr	17	11	8	80	80 00
N hf NW qr	4	11	7	80	120 00	SE qr & S hf NE qr	17	11	8	240	480 00
N hf NE qr	5	11	7	80	160 00	N hf NW qr	19	11	8	80	160 00
N hf NW qr	5	11	7	80	160 00	SW qr	20	11	8	160	240 00
NE qr	9	11	7	160	400 00	W hf SE qr & SW qr	32	11	8	240	480 00
N hf NW qr	14	11	7	80	80 00	S hf NE qr & NW qr	36	11	8	240	240 00
SE qr	16	11	7	160	400 00	NE qr & N hf SE qr	36	11	8	240	240 00
SE qr & S hf NE qr	22	11	7	240	480 00	N hf of NW qr SW qr	10	12	8	240	480 00
SW qr	23	11	7	160	480 00	N hf NE qr & SE qr	7	12	8	240	480 00
SW qr	25	11	7	160	400 00	SW qr & S hf NW qr	14	12	8	240	240 00
NE qr	28	11	7	160	400 00	SE qr & S hf NE qr	18	12	8	240	720 00
N half	27	11	7	320	800 00	SE qr & S hf NE qr	27	12	8	240	240 00
S hf SE qr	33	11	7	80	200 00	N hf NE qr	27	12	8	75	75 00
NE qr	34	11	7	160	480 00	SE qr	34	12	8	160	160 00
N hf NW qr	35	11	7	80	200 00						
SW qr & S hf NW qr	35	11	7	240	600 00						

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

If you do not see what you want in this List, write for our General List, showing Lands for Sale in all parts of the Province.

LOANS THE WESTERN LOAN AND TRUST CO. Loan Money on Farm and City Property. Crotty & Cross, Agents.

CROTTY & CROSS
515 Main St., Winnipeg.

Live Stock Lost, Estray or Impounded.

There is published under the heading in every issue of The Nor'-West Farmer as complete a list of animals lost, estray or impounded as it is possible to secure. The large circulation which The Farmer enjoys makes this page all the more valuable, as it is read in almost every district in Western Canada. No charge is made for notices sent in, if description does not exceed four lines. If over four lines, ten cents per extra line will be charged. Following is the list to hand since June 20th issue:—

Lost.

Austin, Man.—One black pony gelding, white face and some white on one hind foot, branded on shoulder, had a leather halter on when last seen. Alex. Gray.

Barnsley, Man.—One 2-year-old filly and one-year-old, dark roan. A. R. Ruth.

Broadview, Assa.—One brown horse, 5 years old, in poor condition, very leggy, 15½ hands, no brand, black mane and tail, well broken. R. Boulton.

Cottonwood, Assa.—One red yearling heifer, white star on forehead, white tip on tail, no brand. D. McArthur.

Deloraine, Man.—One year old white sow. J. A. Stroud, 33, 3, 23.

Ellisboro, Assa.—One black horse, about 8 years old, one front foot white, small white spot on forehead. Thos. Willers.

Emerson, Man.—Ten yearlings. James Lovering.

Emerson, Man.—One red and white bull calf, about six months old. L. H. Peto.

Fleming, Assa.—One gray mare colt, 2 years old, white hind feet. Geo. Brend, 4, 13, 29.

Fletwode, Assa.—One dark bay broncho mare, narrow white stripe on face, long back mane and tail, left ear punched, had halter on. Chas. Girard.

Hamiota, Man.—Two red yearling heifers. A. E. Brown, 14, 14, 23.

Hednesford, Assa.—Two horses, one bay and one gray, branded A on left shoulder, bay has four white legs, both had halters on. L. Walter.

Indian Head, Assa.—One bay pony, white heart-shaped spot in face, left hind foot white, marked on hip with N P, accompanied by a two-year-old of a grayish color. J. H. Burrows.

Manitou, Man.—Six yearling calves, one white, two red, one red and white and two light roan, branded R S on right horn. R. Shelton, 15, 3, 9.

Moose Jaw, Assa.—One small white cow, and one red and white heifer. George Tapley.

Regina, Assa.—One dark gray mare, about 8 years old; one bay colt, 4 years old. D. Peterson, Palmer House.

Regina, Assa.—One strawberry roan pony, white face, tail squared, about 14.1, branded O on left hip, had on head collar and rope. J. H. McIlree, N. W. M. P. barracks.

Stony Beach, Assa.—One light bay mare, 5 years old, branded T on right thigh, indistinct brand on left shoulder. G. M. Doan.

Swan Lake, Man.—One gray pony, 7 years old, had a year-old dark brown colt with her. R. Blair, 36, 5, 11.

Virden, Man.—Two heavy horses, one brown with white spot on face, one white. J. Switzer.

Wetaskiwin, Alta.—Two 2-year-olds, one a white heifer, both branded E H on left ribs, piece cut out of right ear. E. R. Hill, 6, 35, 26 w. 4.

Weyburn, Assa.—One light roan gelding, white face, 7 years old, about 1,400 lbs.; one bay gelding, clipped, 6 years old, about 1,150 lbs., both branded on left shoulder. Geo. Davis.

Yorkton, Assa.—Brown cow, part bred Jersey, white head, white under belly, crooked horns, partly cut off. N. C. Erickson.

Estray.

Carnoustie, Assa.—One light bay mare, 2 or 3 years old, white face, left hind foot white, old scar across breast. D. C. Hogg, 16, 17, 32 w. 1.

Crescent Lake, Assa.—One bay mare, about 6 years old, star on forehead, branded J H combined. A. W. Shaver.

Edmonton, Alta.—One dark brown horse, 3 years old, both hind feet white and left front foot white, no brand. S. Larue, 6, 53, 25.

Innisfail, Alta.—One cayuse mare, bay, white face, spot on neck, white hind foot, colt at side. J. E. Fawcley.

Killarney, Man.—Three colts, two bay mares, white faces, one has blind eye, the other has cut on breast from barb wire, 6 years old, one horse bay. J. P. Spofford, 32, 1, 16.

Logan, Alta.—One dark bay horse, about 5 years old, left hind foot white, no brand visible. Robt. Logan.

Moose Jaw, Assa.—One dark brown mare, 5 years old, branded (wrong-sided 2) on left shoulder. H. Kendrick.

Olds, Alta.—One red steer, 3 years old, horns spread, dim brand "A over C" or "A over G" on left ribs. H. P. Moore, 10, 33, 1 w. 5.

Pilot Mound, Man.—One red heifer. Thos. Blakeley, 2, 2, 10.

Regina, Assa.—One large gray mare, branded indistinct or rounded P; one black mare, white star on forehead, two white hind feet; one bay mare, white star on forehead, two white hind feet. J. Lytle, 14, 17, 18.

Rosebank, Man.—One black pony, also one yearling colt, buckskin color. Jas. Park.

Windsor, Assa.—One 18 months' old bull, color red, no brand. Wm. Davis, 12, 27, 6.

Wolseley, Assa.—One bay pony mare, branded J C on right shoulder; one gray mare, with indistinct brand on left hip; both have leather halters on. A. Perra, 30, 16, 10.

Wolseley, Assa.—One brown mare, white on forehead and nose, about 3 years old; one bay mare, 3 years old, white hind legs and face; one sorrel mare, white hind feet and face; one sorrel horse, white strip on face, mane and tail cut short. Harry Hill.

Impounded.

Bru, Man.—One mare colt, color buckskin, about 3 or 4 years old, white face, left eye glass, left front foot and left hind leg white. Chas. Josephson, 16, 6, 13.

Cornwallis, Man.—One filly, color bay, left hind foot white and star on forehead. S. P. Fox, 15, 9, 17.

Dauphin, Man.—One black stallion, 2 years old, no marks; one sorrel stallion, 2 years old, white face, white on right fore foot and left hind foot. Donald McKillop, 3, 26, 19.

Grenfell, Assa.—One red 3-year-old heifer, with white on forehead. William Welch, 31, 16, 7 w. 2.

Grund, Man.—One filly, 3 years old; one 2-year-old gelding, both color bay, with white face and white hind feet; one mare, color brown, 8 or 9 years old, with little white on left foot and white spots on left side; one filly, 2 years old, with small stripe of white down face, color bay; one filly, color iron gray, 1 year old; one gelding, color bay, with white stripe on face and left hind foot white and a little white on both front feet. John Badger, 10, 6, 14.

Madford, Man.—One mare, color bay, 2 or 3 years old. Wm. Madder, 22, 11, 17.

Moose Jaw, Assa.—One bay pony, white face, branded CL on left shoulder, indistinct brands on shoulder and hip. J. H. Coventry, 28, 15, 24.

Moose Jaw, Assa.—One bay pony mare, no brand, three white feet, star on forehead. Jas. Campbell, 22, 17, 28.

Pendennis, Man.—One coaching gelding, color bay, white star on forehead, 3 years old. Chas. Fox, 21, 12, 20.

Rapid City, Man.—One pony mare, color bay, white face, two white hind feet, about 12 hands high, about 3 years old. H. W. Tuttle.

Rosebank, Man.—One horse, color sorrel, about 5 years old, branded B on left shoulder. G. Alexander, 7, 5, 5w.

Rosehill, Man.—One mare, color bay, 3 or 4 years old, white star on forehead, left hind foot white. Geo. Smith, 24, 10, 11.

Sourisford, Man.—One mare colt, color bay, 3 years old, no visible brand; one pony mare, color sorrel, aged, three white legs, large white face, home-made leather halter, plaited rope shank on both animals. John W. Snyder, 32, 2, 27.

Stockton, Man.—One mare, color dark grey, branded F on left hip, also hobble marks on fore legs. T. J. McComb, 34, 7, 15.

St. Eustache, Man.—One horse colt, stallion, about 2 years old, color red, little white spot on forehead and one hind leg white. P. Paul, ward 3.

Stonewall, Man.—One red muley bull, 1 year old, white spot on his head, white stripe on one side and white spot on belly. Ed. Good.

The Canadian Order of Foresters.

This purely Canadian fraternal benevolent society was organized in 1879, and now has a membership of upwards of 31,000, distributed in every province in the Dominion.

The Society gives insurance to its members in policies of \$500, \$1,000, \$1,500, or \$2,000, the latter sum being the limit on any one life. The premiums are from 60c. to \$1.00 per month per \$1,000 according to age.

The Sick and Funeral Benefit Branch is a very popular feature with the membership, and upwards of 16,000 of them are participating therein. The rates are very moderate when the benefits are considered. The monthly cost is from 25 cents to 45 cents, and the benefits are \$3.00 per week for the first two weeks and \$5.00 per week for the following ten weeks in any one year. During the first five months of the present year over \$28,000 have been paid out in this department.

To those interested in the subject of "Fraternal Insurance," the desirable features of the Canadian Order of Foresters are well worthy of examination:—

1. Purely Canadian.
2. National in its character.
3. Age limit, 18 to 45 years.
4. Fixed premium; no death assessments.
5. Nearly two million dollars paid to members and their dependents since organization.
6. Careful medical selection; death rate for 20th year of its history only 4.56 per 1,000.
7. Has a larger surplus on hand for each \$1,000 risk than any other society of the kind in Canada; present surplus, \$758,000.
8. Security of Investments; not a dollar of our surplus invested outside of Canada.
9. Premiums and interest accruing therefrom used only for payment of death claims.

For particulars, enquire of any of the officers or members of the order, or address, R. Elliott, H.C.R., Ingersoll, Ont.; Thos. White, High Secretary, Brantford, Ont.; D. E. McKinnon, D.H.C.R., or Wm. Kirkland, D.H.S., Winnipeg, Man.

THE NOR'-WEST FARMER

ISSUED TWICE A MONTH.
ESTABLISHED 1882.

The only Agricultural Paper printed in Canada between Lake Superior and the Pacific Coast, and issued on the 5th and 20th of each month.

THE STOVEL COMPANY,
PROPRIETORS.

CORNER McDERMOT AVE. AND ARTHUR ST.
WINNIPEG, MANITOBA.

SUBSCRIPTION TO Canada or the U.S., \$1 a year, in advance. To Great Britain \$1.25 (5s. sterling). Agents wanted to canvass in every locality, to whom liberal commissions will be given.

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Copy for changes in advertisements should be sent in not later than the 27th and 14th of the month to ensure classified location in the next issue. Copy for new advertisements should reach the office by the 30th and 17th of each month.

TO OUR SUBSCRIBERS.

It is the intention of the publishers of this paper to admit into their columns none but reliable advertisers, and we believe that all the advertisements in this paper are from such parties. If subscribers find any of them to be otherwise, we will esteem it a favour if they will advise us, and we will at any time give our personal attention to any complaints which we receive. Always mention this paper when answering advertisements, as advertisers often advertise different things in several papers.

LETTERS.

Either on business or editorial matters, should be addressed simply "THE NOR'-WEST FARMER, P. O. Box 1310, Winnipeg," and not to any individual.

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When you pay your subscription, watch the name label on the next two issues which you receive. On the first issue following payment, it might not give the correct date—the type-setting machine may make an error and the proof not be corrected before mailing day. But if the date is not correct on the second issue please notify us by postal card.

Look at the date label now. Are you in arrears? Are you "paid up" to the end of 1899? The label will tell you. If in arrears, please renew promptly.

Subscribers who miss any of the issues of "THE NOR'-WEST FARMER" should drop us a card at once and secure same, as we want every subscriber to get **every copy**. Do not delay in sending, as our supply of extras sometimes becomes quickly exhausted.

WINNIPEG, JULY 5, 1899.



OUR PREMIUMS.

Subscribers paying in advance one full year's subscription to The Nor'-West Farmer have the choice of the following premiums:—

"Another Day's Work Done," our premium picture.

Gleason's Horse Book, or
Manning's Cattle Book.

In no case will we dispose of these alone. They will be sent only to subscribers paying the full subscription price, \$1.00.

THE FARMER'S TENT.

The Nor'-West Farmer will again have a tent on the Winnipeg exhibition grounds, which we trust the readers of the paper will use. We want to make your acquaintance. Come and see us. Make our tent your headquarters. Stockmen will find writing material at their disposal when they wish to write to their friends. Orders for printing left at the tent will receive prompt attention.

INCREASING THE PROFIT FROM DAIRYING.

It is recognized by all dairy experts that the secretion of milk depends in a very large measure upon the nervous condition of the cow, the more highly developed the nervous system is the greater her power of making milk. From this it is easy then to draw the conclusion that it is very important that she should have comfortable surroundings free from all annoying influences, where she can graze or chew her cud at pleasure, and be free to elaborate large quantities of milk rich in butter fat. It is, perhaps, not quite so natural to look at the other side of this question, i.e., that annoyance and worry, from whatever cause, are not conducive to best returns in milk. Experiment has shown that cows chased by strange dogs, or, for that matter, by dogs the cows are familiar with, do not give so much milk nor as high a percentage of fat in the milk.

No experiments are on record, so far as we are aware, of the loss caused through the worry of flies and mosquitoes. We feel satisfied that these two things cause a large loss every year in Manitoba. If the cow spends her energies, as she often does, in fighting flies and mosquitoes, she cannot give as much milk, and we feel sure the percentage of butter fat will be much lower. Practical farmers know that when the flies are particularly bad they can see a marked shrinkage in the milk yield. We have not found any one yet who has tested the milk given at such times for butter fat, but we feel certain it will be lower than that given under normal conditions. Will some one test this point for us? How to lessen or counteract the annoyance caused to milk cows by flies and mosquitoes is a question well worthy the study of every dairymen in Manitoba.

Dairymen in the east have suffered loss through the attack of flies, but the more progressive ones among them soon found a preventive, as it cut too seriously into their profits. Kerosene emulsion and a number of other substances having an odor disagreeable to insects were used. At first they were rubbed over the cows with a cloth at points the flies settled on the most. This was too slow, so it was not long before the spray pump was brought into use. It has been found very effective. A good spray pump will soon pay for itself in the saving made in the loss of butter fat. The time required to spray a cow is very small, and it will last for two or three days. Even if it had to be done every day, we believe it will pay well and that a man has only to try it on a few cows to be convinced that it will pay him, and pay well, too, to protect his cows from flies and mosquitoes.

We feel sure that another loss is sustained when the cows have no shade into which they can run during the heat of the day. To have to stay out in the sun all day long must be quite a trial on a highly nervous cow, and we believe that some shelter or protection from the sun will add much to the profits of dairying. An experiment at the Kansas station is worth noting in this connection. A grove was opened up for the cows to run in for shade, but, strange to say, they preferred to gather on the top of the highest knoll in the pasture where there was usually a breeze blowing. The explanation was that the breeze blew away the flies which bothered the cows and allowed them to manufacture milk in peace. Dairymen having a high knoll or bluff which can be added to their pasture, should fix it up as a summer resort for the cows. A natural shade is to be preferred, but, if that is not to be had, an open shed on the top of a breezy knoll will soon pay for itself. It should be kept in mind that bull-dog flies,

which are among the very worst tormenters of cattle, will not follow them into a dark shed, and such a shed is worth all it costs as a protection from bull-dogs alone. Close attention to shade, water and protection from annoyance by flies and mosquitoes will yield a good profit on the cost of obtaining them and thus make dairying more profitable in the west.

GRAIN INSPECTION ACT.

Sir Henry Joly's grain inspection act is being licked into shape at Ottawa. Its final shape will most likely be that inspection at Winnipeg and Emerson will be final. Great care will be taken to prevent any form of re-inspection at Fort William which will lower the grade, and mixing at points further east will also be sharply looked after. The inspectors will have instructions to grade according to the Act, but must also show samples of their various grades when called on. As the present standards are to be final and fixed, the Grain Standard Board will only be called together when the exceptional nature of the grain makes it necessary to provide special grades outside of the regular grades. A penal clause will also be provided to prevent the fraudulent use of certificates given by the inspectors.

THE BRITISH WHEAT SUPPLY.

In 1898 Great Britain imported wheat and flour to the value of £37,700,000 and other grain and breadstuffs worth £25,200,000. Her acreage under wheat in 1898 was 2,102,000 acres, only 472,000 acres more than is this year reported for the Province of Manitoba. Under the intensive system of farming there carried on the yield per acre is much greater than ours, but this is perhaps mainly due to the fact that only the very best land, specially cultivated, is used for a wheat crop. Britain imports from the United States two-thirds of her whole imports of the wheat and flour she gets from all other foreign countries. With the exception of Canada her imports of wheat from her other colonies is trifling. We send her one-half what she gets from Russia and less than one-seventh what she gets from the States.

BEING READY.

"In time of peace prepare for war," is an old but trite saying, which is very applicable to much of a farmer's work. In no line of work does it pay better to be ready for each season's work than in farm operations. Just now this dropping weather should set every farmer making preparations for preserving all the moisture possible by proper cultivation of the land, so as to prevent evaporation. Extremes of weather are likely to follow each other. Promptness is one of the most valuable traits a farmer can possess, as so much of his success depends upon doing the right thing at the right time. No more work is caused by being ready for every kind of work as it comes along, on the other hand, it is more easily done, there is less hurrying after forgotten things, and consequently less loss. Besides it is much nicer to be ahead with your work and be driving it than to have it driving you. There are so many things on the farm that require doing at a certain time that a farmer must be prompt or he will lose considerably. Therefore every farmer should cultivate the habit of being ready for all his work and instil it into his boys.

CONTENTS—JULY 5, 1899

—The charlock spraying business, which was booming a good deal of late in England, is likely to soon reach its business level. A good job on land in Hampshire, rented at \$2.50 an acre, cost \$11.25 an acre. That is the proper way to figure on scientific weed-poisoning.

—This issue of The Farmer is issued a few days ahead of the usual time in order to reach its thousands of readers before they leave for the Winnipeg Industrial Exhibition. That this is a very creditable number we believe all will agree; in fact, we believe it is the best farm journal ever issued in Canada.

—A fox's den was dug up at Cypress River the other day, and it was found that he had stowed away a good supply of fresh meat in the shape of seventeen dead gophers, besides other supplies. The thoughtful farmer will perhaps now recognize the fox as a friend.

—The Farmer is pleased to learn from H. Swinford, the general agent at Winnipeg, that commencing July 1st local passenger rates on main line and branch lines of the Northern Pacific in Manitoba will be on the basis of three cents per mile instead of the prevailing basis of four cents per mile, as in effect at present.

—The Royal English show opened at Maidstone, Kent, on June 17th. One of the great attractions of the opening day was a splendid exhibit from the Garton's seed breeding establishment, now operated by a limited liability company. Owing to the early date at which we must this week go to press, no notice of the awards can be given in this issue.

—It is with pleasure that The Farmer notices that the growing importance of Brandon as a commercial centre has been recognized by making it a port of entry for H. M. customs. Hitherto it has only been an out port under the survey of Winnipeg, now it will have Virden, Kilmarney, Deloraine and Carberry as out posts under its survey. This will be a great boon to Western Manitoba.

—The "whirligig of time" brings curious changes in a few years. A dozen years ago, old David Glass, M.F.P. for St. Clements, was doing his level best to have the government farm located at East Selkirk, the gateway to the agricultural lands of the wide west. Now Sir Wm. Van Horne takes up the same site for a farm, which we hope to see running next year as an example of tip-top farming and stock breeding.

—Resourcefulness, especially in a new country like this, is always valuable. Here is a sample of it. A man employed with Jos. Godkin, Nelson, while teaming wheat to Morden on Monday, got his team stuck in a mud hole, and in unloading, had the misfortune to put his shoulder out. Messrs. T. Ady and John Gibbon happened along just then, and they succeeded in pulling the joint into place again, and the man went on his way rejoicing.

—The collection of cream by railroad transport promises much for the future of factory dairying in the new west. The cost is much lower than it can be done by the average collector, especially in this year of profuse rainfall. It is just possible that the Red river craft now run by the Morris factory can cut still finer than the railroad companies. Let us be thankful, anyway, for all mercies, for the average farm dairy is at low water-mark so far as prices are concerned.

LIVE STOCK.

Progress of Veterinary Science.....	417
The Feeding of Colts	418
General Management of Live Stock	421
Bits and the Horse's Mouth	423
When Doctors Differ	424
Skim-Milk Calves	424
Against Linseed Oil Cake	424
Dysentery in Calves and Other Young Animals	427
A New System of Brands	428
Science of Breeding—In-Breeding	428
The Vicious Bull	429
Worthless Certificates	430
On Judging	430
Cheviot Sheep	430
Producing Export Bacon	430
A Moveable Fence for Pigs	434
A Pig in the Witness Box	434
A Tale of a Pig	435
Among the Breeders	457
Live Stock Lost, Estray or Impounded	459

VETERINARY.

A Good Cattle Book; Serous Abscess; Rheumatism; Springhalt; Nasal Catarrh; Thrombosis; Worms in the Scrotum	436
Stoppago in Teat; Cattle Poisoned by Injurious Plants	437

DAIRY.

Cost and Profit in Milk Production	439
Water Content of Butter	441
The Cheese Eating Habit	442
Skimmings	442
Butter Business at Calgary	445
Gravity Creaming	445
Butter-Milk from Skim-Milk	445

POULTRY.

The Buff Orpington	446
How Many Hens?	446
A Great English Market for Canadian Poultry	447
Care of Young Chicks	448
A Convenient Coop	449
Poultry Fattening	449
Breaking up Broodies	449
Moulting	451
Whence Came the Turkey?	451
Scratchings	451

AMONG THE FARMERS.

Swift Current; Maple Creek	452
Welwyn; Minnedosa; Cornwallis	452A
An Up-to-Date Farm; Handy Arrangement for Pig Feeding; A Wages Dispute	452B
Calgary; Medicine Hat; Wolseley Creamery; File Hills	453

EDITORIAL.

Grenfell Creamery	467
Our Premiums; The Farmers' Tent	460
Increasing the Profit from Dairying	460
Grain Inspection Act	460
The British Wheat Supply	460
Being Ready	460
Down with the Scrub	462
Butter and Cheese Exchange	462
The Relation of the Cow to the Soil	462
Editorial Notes	461, 463

CORRESPONDENCE.

Enquiry re Weed Bulletin; Back Papering; Injury to Shoulder; Re Spaying Heifers; Shrinkage; Cause of Death; Bitter Cream; Prolapsed Vagina; Artificial Impregnation	465
Scrub Immigrants and their Cattle; The Value of Good Plowing	467

GARDEN AND FORESTRY.

Agriculture in Finland	476
Tree Planting	484
Trees as Fence Posts	484
Native Plums	484
The Farm Lawn	484
Fruit Trees at Steinbach	485

FIELD.

Farmers' Institute Meetings at Yorkton and Saltcoats	469
Perennial Weeds	471
Diversified Crops Bring Prosperity	471
How to Get Better Crops	473
A Cheap Farm House	475
Pointers on Irrigation	475
Use Press Drills	476
Maintaining Fertility	476
Canadian Ideas Abroad	476

HOUSEHOLD.

The Farmer's Wife a Business Partner ..	490
Good and Bad Management of the Home ..	490
Some Men Folk	490
For Scouring Knives	490
Great Men's Mothers	493
How to Make Poultices	493
Practical Helps to Pretty Homes	493
Humorous	493
A Perfect Kingdom	494
Coming Shirt Waists	494
Their Honeymoon	497
A Young Cowboy	498
A Word to the Girls	499
How to Get Well Without Medicine	499
How to Get and Keep a Home Happy ..	501
The Rights of Women	501
House Flies	504
How to Iron Properly	504
Cycling	504

MISCELLANEOUS.

The Worth of Experimental Stations	435
Summer and Fall Fairs	451
Plowing Matches	453
The Rocky Mountain Locust	455
A Forecast of the Future	455
Machine Notes	457
Market Review	463
To Get Durable Timber	463
Help-Meets for Western Bachelors	464
The Elevator Grievance	468
The Virtue of Discontent	468
Leaving the Farm in England	479
Leaving the Farm in Manitoba	479
Value of Lightning Rods	479
How the Climate may be Changed	479
Cement Concrete and Farm Buildings ..	480
The New Economic Movement in Ireland ..	483
Mechanics of the Doubletree	487
Territorial Agricultural Societies	489
Small Mammals of Manitoba Destroyed by Birds of Prey	502

ILLUSTRATIONS.

Cheviot Ewes and their Lambs	417
Farm Buildings of J. Atkinson, Glenboro ..	419
On the Farm of A. & J. Morrison, Carman ..	419
Farm Buildings of J. J. Corbett, Rosser ..	423
On the Farm of J. Robertson, Treherne ..	423
View on the Indian Head Exp. Farm	427
Dentonia Park Farm	431
Sheep Ranch at Swift Current	435
Qu'Appelle Station Creamery	439
Indian Head Hunt Club	439
Farm Buildings of J. Armstrong, Portage Plains	441
Farm Home of R. H. Henderson, Winlaw ..	445
"Breezy Heights Farm," Indian Head	445
Pair of Buff Orpingtons	446
On the Farm of W. H. Stephens, Indian Head	447
Convenient Coop	449
Plan of D. Fraser's Stable, Neepawa	473
Farm House Plans	475
Plan for Feed Alley and Cow Stable	481
Plans for Walls—Barns and Silos	480
Territorial Agricultural Societies	489
Implement for Scouring Knives	490
A Corner Writing Table and Book Shelf ..	493
A Yorkshire Beck	498
Moosomin Hounds	501
One Day's Shooting on Whitewater Lake ..	501
Common Striped Gopher	502
Gray Gopher	502

Something for Nothing

The first 25 Farmers that come into my retail store, mention this Ad. and ask to see

Myer's Hay Carrier

I will make each a present of a first-class JACK KNIFE.

J. H. ASHDOWN, WINNIPEG.

BUTTER AND CHEESE EXCHANGE.

In last issue The Farmer noted that the produce merchants of Winnipeg were talking of forming a butter and cheese exchange for the grading and selling of butter and cheese. At a meeting held recently it was decided to form such an exchange. There can be no doubt about the wisdom of the move and of the influence for good it is capable of exerting throughout the province. Just what plans for selling will be adopted we do not know, but it is usual to hold a weekly or possibly only a fortnightly market. An any rate, a regular and definite date will be fixed for sales, so that all produce can be shipped in time to be inspected, graded and ready for sale. The sale of all products will be by auction, each lot sold on its merit and being subject to full competition from all produce buyers, the highest price is likely to be obtained.

The grading of all their make will be a good thing for the butter and cheese makers, as it will let them know just how their products stand and will, as we said before, set a premium upon careful work. Having a regular time for selling will simplify the making of sales. Factories are far apart and buyers are at considerable expense in visiting them. A produce exchange would do away with this expense and buyers could pay a little higher prices. It would also do away with trouble arising out of purchases by wire or letter not being up to the mark on arrival in the city. At present a seller visiting the city to dispose of butter or cheese or other products plays off one buyer against another and often gets more than his goods are worth. On an open market there would be none of this, prices would range according to the grading and not according to the seller's ability to work the buyers.

The quality of butter offered on the Elgin, Ill., market has been greatly improved by the system of inspection and sale adopted there. This, of course, is a producers' rather than a buyers' market, organized and established by its members for securing the highest prices possible for their produce. The inspection has been strict and rigid and goods of a certain grade have a known reputation. It has thus been a great factor in raising the quality of the butter, as every maker strives to reach perfection, so that his make may be classed in the highest grade. This market has given Elgin butter, now well known all over the continent, a name, and we see no reason why similar results should not be obtained here through the grading and selling of butter and cheese in a produce exchange.

THE RELATION OF THE COW TO THE SOIL.

In a wheat-growing country it is difficult to see the exact relation that the cow bears to the soil, but sooner or later the relation will be made apparent. The sooner every man can realize the intimate relation that does exist, the better it will be for his farm, and consequently, his pocket. At present the wheat farmer cannot see his need of the cow, but in the older districts, where the once fertile land has become exhausted, the cow is highly appreciated. As long as the "inexhaustible fertility" of our rich prairie soil holds out, so long will a man be judged by the number of acres of wheat he grows rather than by the quality of his work or the large yields per acre he would secure by more intelligent work.

The Farmer would like to point out that the store of plant food in our "inexhaustible" soil was very large to begin with, but that constant cropping, without restoring any fertility whatever, has rapidly

impoverished it. Farmers are finding that land cropped for ten and fifteen years does not give the returns it used to. The resort is then had to more frequent summerfallowing. This is not a solution of the difficulty, for through the increased moisture gathered by a well handled fallow a greater amount of plant food is rendered available and the process of exhaustion carried a step further. Every crop of wheat carries away a considerable amount of nitrogen, potash and phosphoric acid, the most valuable of plant foods, as well as other substances, and the practice, once so general, of burning off all the straw and even the stubble, added to this loss. There is no known method of restoring the lost fertility excepting through the cow or other animal. Summerfallowing does not add to the store of plant food in the soil. Growing plants gather food from the soil and air and on their decay in the soil the materials they have gathered are more readily available as plant food than the original compounds in the soil. Those materials gathered from the air by plants, other than the members of the clover family, do not add to the fertility of the land.

Nature has provided a way to restore the lost fertility, it is through the cow. Man cannot use as food all the raw products of the soil, but nature has provided the cow and other animals to convert the grass and grain into food products that man can use. Hence no country or farmer can long succeed that does not take into consideration the keeping of cows or other live stock on a large scale. In the conversion of raw products into forms of food suitable for man, the essential plant foods are not drawn upon to a very large extent, but are returned in the manure. It is this fact that makes the relation of the cow to the soil invaluable. The coarse bulky fodder and the grains are digested by the animal and from 75 to 80 per cent. (and even more than 90 per cent. in a fattening animal) of the nitrogen, potash, phosphoric acid and other mineral matter, originally gathered by the plants, are returned in the manure. To get the value of this the manure must be returned to the land, otherwise the land does not benefit by stock being kept. A consideration of these facts will show any thinking man that the relation of the cow to the soil is such that it cannot be long overlooked without serious derangement of natural processes, which will sooner or later touch his pocket. To avoid this, keep more stock and return the manure to the land, so that its fertility may be kept in such a state as to produce maximum yields with large profits.

DOWN WITH THE SCRUB.

The Farmer has time and again called attention to the rapid advancement that the Argentine breeders have made in the improvement of their cattle, and we have pointed out that Canadian cattle will be left out in the cold unless our breeders look sharp. A law has been passed recently in Colorado that deserves more than passing mention. A note was made of it in our last issue, but it will stand repeating. After July 6th no mustang or other inferior stallion, no Texan, Mexican, Cherokee, or other inferior bull, and no inferior ram shall be allowed to run at large. Any person allowing one to do so can be punished and any person finding an inferior sire running at large may castrate the animal.

This is a practical law and if carried out in the right spirit should be of immense benefit to the stock of the state. Of course, there will not be wanting men to denounce the whole thing and declare that their rights as individuals and American citizens have been interfered with, and

that they have a right to breed scrubs if they want to. The men who framed this law are not of that stamp, but men who know what is good for the country and are not afraid to put their ideas into practice. It may be called "grandmotherly legislation," but it is a practical kind of legislation, of which we can stand a good deal more.

Sometimes people have to be driven into doing things that are for their own good, and legislation of this kind, drastic as it may appear, is after all in the best interests of every stockman in the state. The framers of this law have an eye to the future and such a law faithfully carried out is bound to bring their live stock to the front. Manitoba is losing thousands of dollars every year through the use of scrub and other inferior sires. In some districts men, who used to take pride in improving their herds, have given up doing so because of the number of scrub sires that run at large. It would be well if there were a law similar to that of Colorado in Western Canada. It can come none too soon, especially for our cattle which have to come into competition in the old country market with those from Argentine and Colorado, where such efforts for improvement are being made. Our stockmen must stir themselves if they are to keep pace with their competitors.

The Territorial Government are to be commended for their efforts in assisting farmers to bring in pure bred stock, and both it and the Manitoba Government are fostering the live stock associations, but could they not do more? This is a new country, and it is most important that a good foundation be laid in every line of live stock. Because of this newness of the country would it not be wise for the Government to assume greater control over breeding sires? It can never be done so easily as now. All sires standing for hire should be inspected and licensed if they come up to a certain standard. No inferior bull should be given a license. It is, of course hard to interfere with a man's private work, and say he shall not use a grade sire if he wants to, but the rapid improvement that would follow such a course and the consequent increase in money value would more than justify such drastic legislation on the part of either government.

—The Royal Scottish Society holds its annual show at Edinburgh, July 4 to 8. It will be the biggest show of horses ever made in the history of the society. We make a note of the entries which it will be interesting to compare with our own "backwoods" display at Winnipeg: Cattle, 383; horses, 515; sheep, 473; swine, 46; poultry, 546; dairy produce, 44; wool, 14; butter-making, 67. The Prince of Wales will be present.

—It is with regret that The Farmer notices that Wm. Rennie, Farm Superintendent of the Ontario Agricultural College has announced his intention of retiring. Mr. Rennie has shown himself one of the most progressive of farmers and has brought the college farm into such a state of fertility that it may now be truly called a "model farm." Mr. Rennie accepted the position in the first place for the special purpose of illustrating his system of shallow cultivation. This he has done most successfully, and having done so now wishes to retire to his own farm. His system consists, briefly, in plowing deeply only once in four years, the rest of his work being done by shallow cultivation, thus preserving in the surface soil the plant food liberated by the action of the air and the decay of humus, and the fine tilth obtained by cultivation. Mr. Rennie has done a work that will have its influence long after he is gone.

—The Carman district is notable for the number and success of its farmers' elevators. That at Carman itself is of old standing, and though it made one year nothing to speak of, its backers did not get silly over it and it has paid them well all through, besides the benefit to the district of better competition and freer trade. Roland reports about 275,000 bushels of wheat handled, besides \$3,000 earned by chopping grain. Myrtle, Miami, and more recently, Rosebank, are each to have a farmers' elevator ready for next crop. Darlingford is another point at which a group of practical farmers are taking hold of the same business with every prospect of permanent success.

—We commend to the thoughtful consideration of our western farmers the article in this issue regarding a market for Canadian poultry in England. We are convinced that if the farmers will take this matter up and deal with it in a business way the returns will justify the time and expense. Last year the dealers in Winnipeg were compelled to import thousands of dollars' worth of poultry, simply because the supply was not equal to the demand here. The Farmer would like to see a strong effort made to hold this trade in the west. There are many splendid locations for poultry farms and we believe all that is necessary is for the farmers to seize the opportunity. Do not make large investments at first, but start with good stock and spend some attention and thought, the results, we think, will justify the expenditure.

—Wherever large numbers of people gather, a class of persons is usually found who make a living by deceiving the public. They have schemes and tricks innumerable that appear to be easy and simple; but in reality they are quite difficult and in some cases impossible to successfully perform. They have wheels and machines that are doctored to turn as the proprietor may wish to make them. They contribute nothing helpful or good. They do not add to the attraction of the fair. They do not bring desirable patrons. They do not swell the gate receipts. They are not wanted by honest farmers. They distract the thought, they divert the attention, they destroy the interest in the real work of the fair. The competitive exhibitions, the meritorious displays, the awarding of prizes are all robbed of the undivided interest that belongs to them, and which the proprietors have labored day and night to develop. Give them a wide berth.

Market Review.

June 28th, 1899.

Wheat.

It is rather early to calculate on the home yield of the present crop year, but we can with some degree of certainty figure up the chances of the outside countries that are our rivals in wheat production, and form a fairly accurate estimate of the influence they will have on the price of what we are growing here. Everybody knows that the United States is the great wheat exporting country of the world. Last fall and winter the splendid showing made by their fall wheat was one of the principal factors which helped to hold down the speculative value of the world's whole crop. The severity of the winter put a different complexion on the case, and the latest U. S. crop bulletin shows what the prospects of their winter wheat crop now are. The observations made up to June 1 leave little doubt about the true state of the case. The average condition of the total winter wheat

crop is 67.3 as compared with 90.8 last June, and 83.4, the mean of the June averages for the last 13 years. The State of Michigan, with a wheat area equal to that of Manitoba, is 38 per cent. below the 13 years' average, and Oklahoma, a small state, is the only one up to the average. Of the spring wheat area the average condition is 91.4, compared with 100.9 last June, and 96.2, the average for the last 13 years. South Dakota makes the best showing of any state this spring, but is only 2 per cent. above the 13 years' average. A U. S. estimate gives the winter wheat area as 26,000,000 acres, with probable yield of 11 bushels, or about 285,000,000 bushels, and the spring wheat area as 17,750,000 acres, with 13½ bushels of probable yield, or 235,000,000 bushels of spring wheat. In all, this is below 500,000,000 bushels for 1899 against 675,000,000 for 1898.

When this report came out, a fortnight ago, it naturally enlivened the speculative demand, and that again was the means of enlarging to an unexpected extent the deliveries out of farmers' and other stores. But at the date of this writing that advance has been lost, and it is only the overloaded cash market that can be blamed for the depression. There is nothing in the reported condition of crops in other leading wheat countries to warrant the expectation that this year's crop for the world can come near that of 1898. One British estimate makes the total world's crop for 1899, 2,504,000,000 bushels, against 2,748,000,000 for 1898, a reduction of 244,000,000 bushels, or nearly 9 per cent. Another British estimate makes the deficit 352,000,000.

Russia, which, next after the States, is the principal source of wheat supply, is at present suffering in some of its best districts from drouth as disastrous as that of 1897, and it is not likely that its exports can be at all equal to those of last year. The whole of the rest of Southeastern Europe has also suffered severely from drouth. France is the only great wheat producing country with a good outlook.

The probabilities are that as soon as the present rush of cash wheat dries up markets will go up and stay up and present quotations on December wheat support that view.

Chicago quotations this morning on the Board of Trade are: July, 72½; Sept., 74½ to 74¾; Dec., 76½; Fort William, afloat, 73c. The process of unloading overhauled farmers' wheat stocks, which has broken the Chicago market so badly within the last ten days, is beginning to operate here, we hope to a limited extent. We may give one example. A well-to-do farmer stored last fall in the elevator of a company that offered him at the time 65c. They have made him several offers since, and yesterday got the lot at 56c.

Cattle.

The market is stiff for good cattle, farmers expecting fancy prices beyond what the dealers can afford for export. First rate steers are pretty scarce, and 4½, with the prospect of 5, may be quoted now. Grass cattle may come in in ten days, but it will be very "slippery beef," as the feed is far too rank to make profitable meat at present.

Sheep.

Mutton from both Ontario and Manitoba is on the local market; 5c. to 5½c is the quotation.

Hogs.

Pork may be quoted at 4½c. at Winnipeg, with only moderate deliveries.

Hides

The price and general market condition of hides remain unchanged. No. 1, 6½c.; No. 2, 5½c.; No. 3, 4½c.; horse hides, 50c. to \$1.25; sheep skins, 10c, clips; kip skins, No. 1, 6½c.; No. 2, 5½c.; No. 3, 4½c.

Wool.

Very little wool is coming in and is evidently being held in the country until the market improves. Prices range from 6c. to 8c. per lb. The bulk of last year's stock is yet unsold and blocks the way to any chance of improvement. The American tariff keeps down the chance of any improvement in the value of Ontario wool.

Eggs.

The figure offered by Winnipeg houses is 13c. here, but there is a chance of improvement on the probability that the exhibition may raise the demand.

Oats

Little change in amount of deliveries or prices since last report. For good feed, 40c. to 42c., at Winnipeg, are the figures. Inferior lots are taken as to quality any way down from 40c. to 35c.

Flour.

The market is pretty steady. Last month's prices remain unchanged. Patent, \$2; strong bakers', \$1.80; XXXX, \$1.10. Bran, \$10; shorts, \$12 per ton.

Creamery Butter

Is being taken by the storage warehouses at 15c. here. Choice farmer's separator brings up to 13c. Dairy, good quality, 10c., country stores giving 9c. Inferior quality is worth still less, and not worth over 8c. Nearly the whole taken is being held in storage for September delivery, and the present figures are likely to rule for weeks to come.

Cheese

Is quoted at 8c., though a trifle more has been paid for a small lot of good quality. The prospect is that less than 8c. will be the figure in the immediate future.

Montreal, June 27.—Reported by A. W. Grant—Cheese dull, 8c. to 8½c; creamery butter dull, 16c. to 17½c.

To Get Durable Timber.

When durability is a consideration timber is worth from two to four times as much if cut between July 15 and August 15, as the same would be cut in January to April. If a tree is cut after the starch which enters into its chemical composition has changed to sugar, say in March, the worms, being very fond of this sweet, become destructive to the wood; but if cut in July, after the completion of the spring growth, there is no sugar in the sap or wood and they seek some more savory food.

Another reason is because if cut when the sap is rich in sugar the fermentive process changes the sugar into an acid, which is the very first stage of decay, and if decay is thus early started is it any wonder that posts and ties do not last as they would if cut when these conditions could not possibly exist?

As a rule a post cut in March when full of sugar sap will last only a few years. It costs just as much to replace a tie or post that will last say ten years as to replace one that will last three or four times as long. This is quite a consideration when we consider that our forests are fast disappearing—much faster than they are reproduced. Most kinds of timber, if cut from January to April will sprout and grow again, because the sap at this season of the year is rich in sugar, to reproduce the leaves, which are the lungs as well as digestive organs of vegetation, but if cut the last of July or the first half of August dies because deprived of both. This idea is valuable to those who wish to destroy certain kinds of trees or to clean up brush land.

PEEL'S HORSE AND CATTLE FOOD

The Great Blood Purifier, WILL SAVE YOU DOLLARS.

Will put your Stock in Good Condition for very little money. Hundreds who have used it certify to its being the best on the market. Every package sold on a positive guarantee. See Pamphlets and Testimonials.

Manufactured by R. H. PEEL, Winnipeg, Man.

Help-meets for Western Bachelors.

Miss Shaw, the noted colonial correspondent of the Times, has, with that brilliancy of vision for which we look in vain in ordinary females, outlined a scheme by which the mother country may be relieved of her excess stock of genteel females and the western bachelor made happy by possessing a help-meet and comforter in his lonely shack. She has found a warm advocate of this beneficent scheme in Mrs. Fitzgibbon, who advocates, in the Toronto Globe, the establishment of a western college, in which these single ladies may get qualified to run the establishment of a homesteader.

It is just within the bounds of possibility that a globe-trotter like Miss Shaw has not had time in the observations made in her ride across the continent to understand fully the accomplishments and qualities desirable in a western prairie farmer's wife. There is a glamour in the atmosphere and such an excess of ozone that ladies of her type of mind are liable to get giddy and oblivious to the cold facts of the case. We would therefore commend to her careful consideration the following suggestions from a correspondent who has evidently been there and knows all about it. He says:

"I hasten to assure the philanthropists of the east of my hearty concurrence in and approval of the scheme, and to point out that to achieve the best results it must be

executed on the broadest lines. The fullest possible information should be obtained, as any mistake may prove fatal to the complete success which I predict for the scheme if carried out on right lines.

"In the first place, the prime qualification to be secured in all cases at whatever sacrifice, is toughness. Different types succeed better in different localities, and these will be discussed later. But toughness is the first essential. Our climate is a hard one, and railway freights being heavy, it will not pay to import those classes which cannot be reasonably expected to stand our winters without too expensive quarters. A competent authority should make a thorough examination to see that they are sound in wind and limb, and have good teeth. Bad teeth are a frequent cause of indigestion, because in the winter our frozen foods are hard to masticate. Boiling is expensive, and by all economical managers is avoided.

"For the northwestern part of the province large and rangy females, with good bones, should be selected, as this aids materially in handling an axe, which is necessary in the woods. As fuel is plentiful, these may be dark colored, but in the south and west none but light colors should be selected, as fuel is scarce, and dark-haired specimens always require the most heat.

"Those intended for the lakes should have the proper waddle, which fits them for balancing a canoe, and they should be hard at the mouth to permit them of holding the trolling line between the lips.

Those thick-set and well built might well be located along the line of the Dauphin railway, as the digging will be pretty heavy.

"Leanness, provided it does not indicate any disease, is rather a good quality, for experience proves that this class fatten more rapidly on our coarse foods, and, besides taking up less room, more can be shipped per ear, which is an important consideration.

"The fact that needs to be impressed on eastern philanthropists is that the time has now arrived when Western Canada must give more attention to the quality than to the quantity. Value is what we want. There are plenty of women here, but only a fraction are the right kind; the rest are only moderately profitable, and in these days of keen competition we must rigidly adhere to the most profitable type if we are to hope for success. In the past some have not been of a contented disposition. All who have studied this matter know how much this has to do with easy maintenance. Our main winter foods, in addition to the coarse foods mentioned above, are frozen tallow and dried shaggonappi, and unless the eastern importations can thrive on this and come out in good condition in the spring it is useless to send them west. We have too many of that kind here now. In conclusion, what we want is a tough, thrifty, bony, general-purpose class, and it is assumed that pedigrees will be sent with each importation, and that nothing lower than high grades will be accepted, even to fill up ears."

The Speight Sleigh



IS MADE ESPECIALLY FOR MANITOBA AND THE NORTH-WEST TERRITORIES,

And made with either wood or steel knee, and furnished with regular bolsters or log bunks and clevises. These can also be supplied with steel shoeing, or with our new channel cast shoeing, which takes the lead and projects $\frac{1}{4}$ inch over runner.

SEE EXHIBIT IN MACHINERY HALL AT WINNIPEG,

Where our representatives will be glad to show you the goods and quote prices.

H. F. ANDERSON, THE SPEIGHT WAGON CO., Markham, Ont.
Distributing Agent.



While our columns are always open for the discussion of any relevant subject, we do not necessarily endorse the opinions of all contributors. Correspondents will kindly write on one side of the sheet only and in every case give the name—not necessarily for publication, but as a guarantee of good faith. All correspondence will be subject to revision.

Enquiry re Weed Bulletin.

An enquirer asks: "Has any bulletin or report ever been issued by the Manitoba Department of Agriculture dealing with the noxious weeds of the west?"

Answer.—Yes. Write the Department of Agriculture, Winnipeg, for bulletin on "Noxious Weeds and How to Destroy Them." The Department of Agriculture for the Territories at Regina has also issued a similar bulletin, which can be had on application.

Back Papering.

T. H. G., Douglas, Man.: "Having seen in one of your back issues a method for substituting back plastering in a dwelling house by pasting thin cotton and felt paper between studding, would like to know if you think there is any danger of the frost causing the cotton to peel off. You would greatly oblige me by giving your opinion through the medium of your valuable paper."

Answer.—We think that if wet is not allowed to get through cracks or knot-holes of the outside boarding, there is no risk of such paper peeling off, provided the paste is of good quality.

Injury to Shoulder.

S. McRoberts, Brandon: "I have a colt that got lame this spring in seeding; its leg and shoulder all swollen up and it pulled its leg along when it went to step; the swelling is not all gone yet; I took it for a sweeney. Can you tell me what is wrong and how to cure it?"

Answer.—Some injury has been received by the muscles and ligaments of the shoulder, probably a severe sprain, but your description is too indefinite to enable one to locate the exact ones damaged. A good smart blister over the injured region would probably be the best treatment for it at this stage, but if you could have the colt examined by a veterinary surgeon, by all means do so, and be guided by his advice.

Re Spaying Heifers.

Dr. Warnock, M. R. C. V. S., Eng., Mgr. Walrond Rancho Co., Fort Macleod, Alta., writes:—"In looking over The Farmer for May I notice a reply to D. B., Gleichen, Alberta, re spaying heifers. The author of the reply has—inadvertently, I presume—made a mistake in advising that the operation be performed through the "right flank." The incision should be made in the left flank, the operator's hand being passed behind the rumen. If the incision is made through the right flank, the heifer in her struggles will cause extensive protrusion of small intestines, thereby rendering the operation much more difficult, and much more serious to the patient. By operating from the left side, there is no protrusion and the ovaries are easily reached. A very important matter is to fast the animal for twenty-four hours before operating, so that the rumen may be empty. J. J. Hewson, gunsmith, Macleod, makes a cheap and serviceable spaying hook, by which the ovaries can be removed without pulling

them to the outside. I write from extensive practical experience, having operated on some thousands of cows and heifers for the Walrond and other large cattle outfits."

Shrinkage.

"Scales," Southern Manitoba: "I was glad to see one of your correspondents at Ninette taking up the subject of shrinkage in your issue of May 20th. This is a question that affects the farmer in almost everything he has to sell. His wheat is subject to dockage, his steers and hogs must be shrunk 5 per cent., even dressed hogs have 2 lbs. a piece taken off them. Butter, one would imagine, should escape, but this is not so, with tubs at least. If the farmer's wife packs 21½ lbs. in a tub which the trade calls a 20-lb. tub (and it can be done), she loses the 1½ lbs. Of course she won't do it again. "Once bitten, twice shy." There does not, however, appear to be any shrinkage in eggs, unless it is in the price. The curious thing is that as a rule the farmer has to take the purchaser's weight when selling, and when he buys he takes the seller's weight. Three years ago I bought a 1,200-lbs. scales and since then have weighed every bushel of wheat I have sold, and it pays me to do so. If I sell a quarter of beef or a dressed hog to a neighbor, or even a pound of butter, I can weigh it, and there's no guess-work about the matter. A platform scale will pay for itself in one year. My advice is—try it."

Cause of Death.

E. B., Boissevain:—"Kindly inform me through your columns what ailed my young pig. He was 9 weeks old, weighed 28 lbs., had been weaned 10 days, had no inclination to eat either dinner or supper, and the next morning was dead. A *post mortem* revealed that his large intestines or one-third of whole were full of blood, one-third were in their natural condition, only empty, and the other third were full of hard clotted lumps. When opening him the blood ran out. I fed him on oat and barley, chop, shorts and bran, with all the milk and buttermilk he could drink. The rest of the litter seem to be in good condition."

Answer.—The pig evidently died from hemorrhage into the bowel, but whether this was the result of improper feeding, of parasites, or of accident it is impossible to tell from the data given. There is nothing about the ration you mention that would be likely to cause irritation of the bowels, and the fact of the rest of the litter remaining healthy on the same food must exclude it as a cause. There remain, then, only parasites and accident as probable causes. If the former, you would most likely have observed them in the bowel. So that the chance of some accident happening to the pig should be enquired into. A severe blow or kick on the abdomen would produce the conditions found.

Bitter Cream—Prolapsed Vagina.

Subscriber, Carberry: "1. "Will you kindly tell me through your paper what is the cause of my cream being bitter? I have a frame milk-house, dug two feet in the ground, and I keep my milk in pans on a shelf put on the earth bank; I churn twice a week and am very particular about my dairy utensils being clean. When I have churned the butter has a bitter nip."

2. Also kindly tell me what is the cause and what the cure of a mare that has a protrusion behind; it is about as large as a goose egg, and it only protrudes when the mare lies down. She eats well and works well. Please let me have your opinion about both cases."

Answer.—1. If there is no bitterness in the milk, but only in the cream, it is evident that the cause is not to be looked for in the food of the cows but in the handling of the cream, etc., afterwards. There are some varieties of bacteria which produce nasty flavors in cream and butter, and probably your dairy and utensils have become infected with germ life of this kind, and each successive milking becomes a field for their development. To get rid of them from the dairy, clean it out thoroughly and remove a couple of inches from the earth bank upon which you have been placing the milk pans. Then give the interior a good whitewashing and leave open to sun and air for a couple of days. Utensils should be washed with warm water and soda and then scalded with boiling water and placed in the sun. If you have been in the habit of using a "starter" to ripen the cream throw away what you have and get a fresh supply from a neighbor who is a good butter maker.

2. This protrusion of the internal parts when lying down is not uncommon in mares and cows, and is merely the result of a relaxed condition of the parts. It is not dangerous and does not call for any treatment. As a preventative, do not stable the mare on a floor with any decided slope to the rear, as that would have a tendency to aggravate the trouble. Occasionally a cyst may form in the wall of the vagina and protrude at times. It is distinguished by its tense elastic feel, and the fact of being confined to one side or the other. It may be cured by incision and calls for surgical treatment.

Artificial Impregnation.

Horseman, Rapid City, Man.: "I understand that there are instruments to be had for serving mares artificially. Where can they be obtained? I am told that semen can be brought from Europe and with these instruments successfully used. Is this so?"

Answer.—We think "Horseman" must have been badly misinformed when told that semen could be brought from Europe and used successfully here. It cannot be done. As to instruments for artificial service, the only one we ever knew of being used was a syringe, introduced after service of one mare by a stallion to take up some of the semen and transfer it to another mare.

The following letter by M. T. Grattan, which appeared in the Breeders' Gazette some months ago, will give "Horseman" additional light on this subject:—

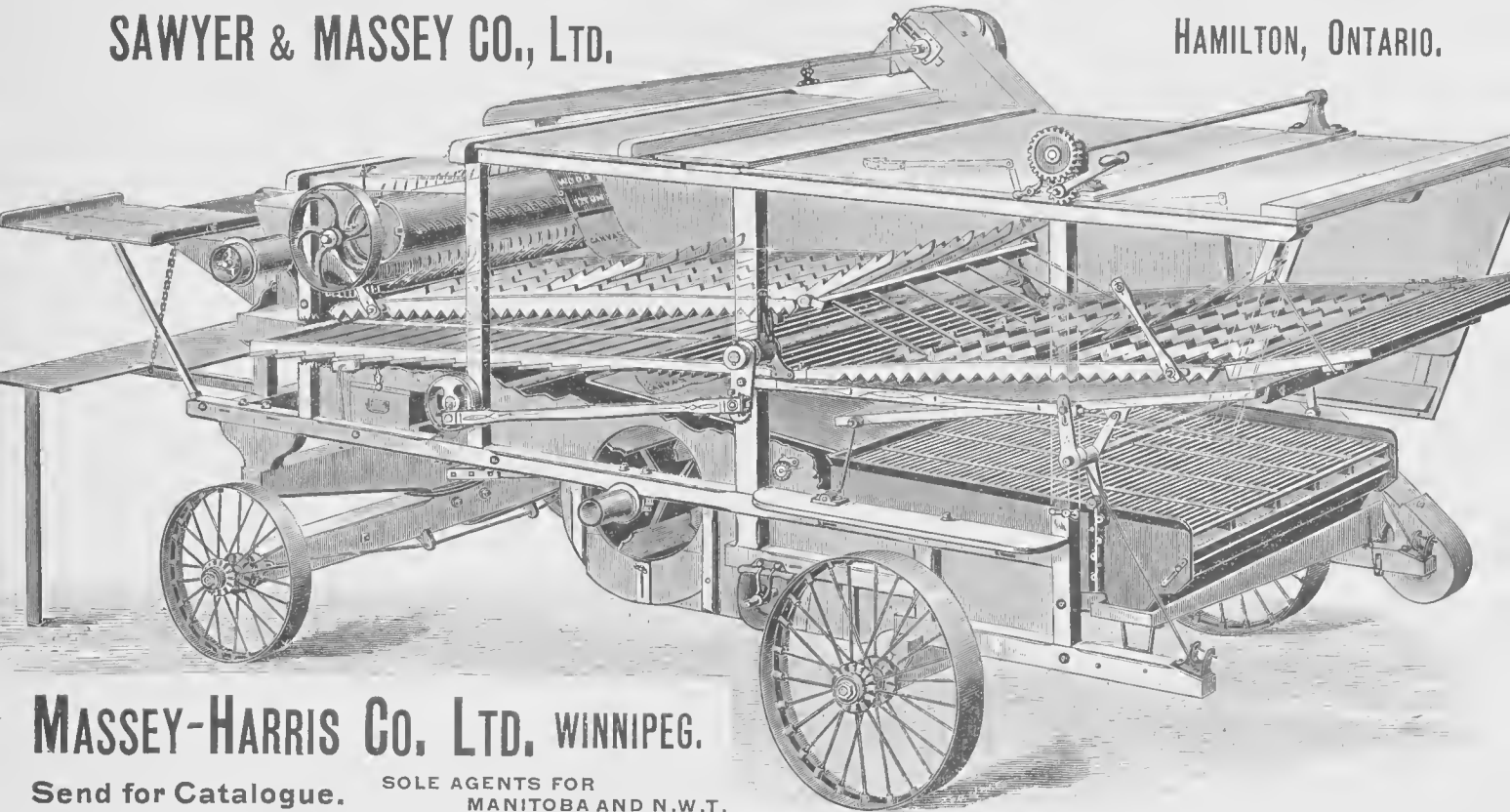
It may be stated by way of prelude that my knowledge from observation and books of the passage of the egg from a mare's ovary into the womb is almost *nil*. Not but what the physiological process can be accurately mapped out, but the actual fact of the passage and its date is the difficulty. The authorities assure us that the period of heat is proof of the fruitful ovary. It may be a symptom, and probably is, but I am sure that it is not to be relied upon as a finality. Neither is the total absence of the heat period conclusive that a mare will not breed. A neighbor, O. A. Maland, owns a trotting-bred mare that never came in season, though she was kept in the barn with stallions and often tried. Mr. Maland desired to breed her to Herod, and I finally advised that a forced service might possibly bring her in season, but that I would not undertake it with the old horse. The straps were put on her while a young and very handy stallion was brought out. But the straps did not suffice; she would strike and bite everything within reach, fighting like a demon until there was not a dry hair on her and she was panting like a lizard. After she was exhausted and unable to struggle any longer the horse served. This was on the 29th day of July, 1884. Frequently during the summer Mr. Maland in-

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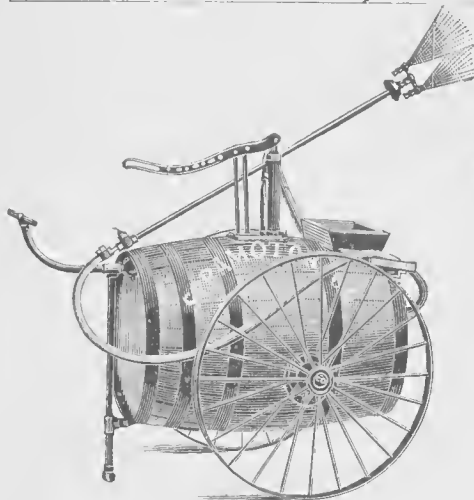
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SOLE AGENTS FOR
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THE SPRAMOTOR FIRST.

IT HAS BEEN A CLINCHER TO THOUSANDS
TO KNOW THAT THE SPRAMOTOR

Has been endorsed by men and firms of such standing and reputation as :

Hon. John Dryden, Minister of Agriculture, Ont.; L. Woolverton, Editor of Canadian Horticulturist, Grimsby, Ont.; Canada Sugar Refining Co., Montreal, Que.; Geo. C. Caston, Craighurst; Carling Brewing and Malting Co., London, Ont.; City Gas Co., London, Ont.; H. Clark & Co., Toronto, Palmerston and Kingston; H. Cary, Petrolia, Ont.; Dominion Brewery Co., Toronto, Ont.; Ontario Jockey Club, Toronto, Ont.; Hamilton Sewerage Disposal Works, Hamilton, Ont.; Hon. Geo. A. Drummond, Montreal, Que.; Sir McKenzie Bowell, Belleville, Ont.; Robert Hamilton, Granville, Que.; J. L. Hilborne, Leamington, Ont.; H. L. Hutt, Grimsby, Ont.; M. Pettit, Winona, Ont. (Judges of Spraying Contest).



All Spraying, Disinfecting, Whitewashing and
Painting can be done with THE SPRAMOTOR.

A trial of appliances when conducted by a British Government, is sure to prove a valuable asset to the winner.

Rival manufacturers would gladly have let the result of contest of spraying apparatus die, but how would this suit the purchasers of this kind of appliances, who have been buying apparatus that have not been satisfactory in use, and have caused more people to delay the practice of spraying than all other causes combined.

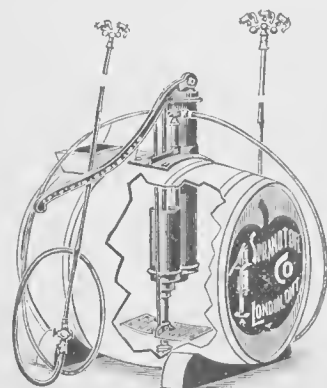
OVER ONE HUNDRED GOLD MEDALS AND HIGHEST AWARDS have been granted the Spramotor in three years. 82 outfits are in use by the Ontario and Dominion Government for experimental work. Adopted by six American and European Governments.

CERTIFICATE OF JUDGES' AWARD.

THIS is to certify that at the Contest of Spraying Apparatus held at Grimsby under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario in which there were eleven contestants, the Spramotor, made by the Spramotor Co. of London, Ont., was awarded FIRST PLACE.

H. L. HUTT, } Judges.
M. PETTIT, }

Send for full particulars in our Copyrighted Catalogue on the diseases affecting fruit trees, vegetables, etc., and their remedies. Address—



AGENTS WANTED.

SPRAMOTOR CO., LONDON, ONTARIO.

formed me that my plan was valucless; that June, the mare in question (a daughter of the Tennessee stallion Acme), would never take the horse, and she never did again, but on the 23rd day of June, 1885, she foaled a big, handsome bay colt, the image of its sire, which was in due time named Raparree. Here was absolute proof of fruitful ovaries without menstruation that was visible or that had any effect upon the mind of the subject. On the other hand, mares come in season and will take the horse after they are with foal. This fact is too well-known to require any instances in proof.

The authorities term these periods false heat. But are they? Who knows absolutely that the ovaries cease their work upon impregnation? We may conclude, then, that the manifestation of sexual desire in the mare or its entire absence does not prove impregnation possible or impossible. Considering this, artificial impregnation must rank among the empirical operations and owes its success or failure to the good guessing of the operator.

My first guess concerning it is that to be successful the operation should be performed as early in the heat as practicable, for an egg cannot be impregnated in the womb after it has left the womb. The failure of some mares to breed is probably due to the early and easy discharge of the egg, which the sticky character of the semen would detain if properly placed. And right here let me say to the critical professional reader that this article is for laymen by a layman, and that "egg," not "ovum," will prevail so far as it is possible for me to express the idea without the use of technical terms.

Having decided to attempt the artificial impregnation of a shy breeder try her often—say every other day—so as to catch her early; though sometimes a little delay is unavoidable if the mare is inclined to be ugly the first day or so of her heat, for although strapped or hopped a mare can do serious injury with her hocks. If determined to take chances put on a twitch and have an assistant raise her head well. With arm stripped to the shoulder, thoroughly wet in a pail of tepid water, make an examination of the mouth of the womb. If you are a tyro (and every man has been one) you will need a little instruction. The womb opening varies much in form, size and location. Usually well back in the vaginal passage is a tense bit of contracted membrane about the diameter of a fork handle and from four to six inches long as it feels to the hand, for I never measured it and some *post mortem* evidence might prove me wrong. Here is the danger to the tyro in mistaking the urethra, or mouth of the bladder, for the mouth of the womb. Several mares have been killed in this section thereby and many injured. The mouth of the bladder is on the floor of the vaginal passage and close to the vulva or outer parts. It will never be mistaken but once for the mouth of the womb, but that one error is apt to be costly. Apparently the mouth of the womb may be closed, but a little manipulation will develop an orifice which should be patiently dilated. If found sufficiently open to take a capsule do not dilate at all. Have capsules of various sizes, and if you want the strongest ones with pointed ends, get Planter's. Some operators complain that they cannot make the more fragile capsules work, as they dissolve too quickly. The Planter ounce rectal capsule will outlast the most clumsy manipulation, but to a quick operator many cases are found where a smaller and softer capsule is preferable.

Having everything in readiness, order the assistant to bring up the stallion and serve the mare. Immediately after service insert the capsule; keeping it well within the palm, dip up semen from the vaginal floor and insert in womb. Do not attempt to withdraw capsule to see if it is filled with semen or attempt to cap it. If in doubt fill

the cap in the same manner and insert it also. With the soft capsule the open end may be closed when it contains any semen at all, and following the thumb and first fingers this will prove efficient if it carries the most infinitesimal quantity. With these general directions practice and adroitness will accomplish the rest. If a second or third mare is to be operated on prepare them in like manner, having hoppers for each one, and after the service dip up semen from the vaginal floor of the mare served and introduce into the wombs of the others, keeping the capsule well shut in the hand in transit.

As to success or failure, that depends upon many things. It will not work on a mare whose ovaries are unfruitful any more than if she had been spayed. It will not work if the egg has passed, nor if clumsily done, or with semen of poor quality. But it will work in most cases where mares are thought to be barren. One instance in point: Last year I traded for the big chestnut mare Crescent, dam of Golden Link, 2.22½. She was foaled in 1883, and though bred to virile young stallions had failed to produce for several years. She yielded to the first trial of a capsule, and her foal is kicking around in her vigorously now. Barren at her age she had no value.

Scrub Immigrants and Their Cattle.

A settler at Lamerton, Alta., writes us complaining bitterly of the scrub bulls used by the foreign immigrants that are being settled around him by our government. He says: "I am trying to improve my stock by keeping a pure-bred bull, but am almost in despair, for I am surrounded by Russians and Hungarians, who all keep the very worst kind of scrubs. What I would hardly keep for a steer they use as a bull. It takes me nearly all my time watching, to keep away these brutes. What I want to know is, if the law will protect me in keeping away these scrubs. If not, I may as well sell my bull or leave the country. No use in the government inviting us to bring in good bulls and have these brutes here. A good grade bull is not so bad, but these long-legged runts are hardly fit to eat, except by Indians."

Note.—Our correspondent hits the nail square on the head, and we invite the Hon. Mr. Bulyea to read and reflect on this poor man's hard case.

The Value of Good Plowing.

An Old Plowman, Qu'Appelle Station, writes: "It seems to me that there is not enough attention paid to this part of farming in this Northwest. If one was to drive from farm to farm and look at the plowing being done, it would surprise them how few do the plowing in first-class style. Many farmers think that so long as the land is plowed it is all right. This is a mistake; the better the plowing, the better the land will cultivate. 'The nearest road across the field is the straightest,' and the quickest finished land is the one that comes out even at the last. With a little care in stepping out lands and a judicious use of poles, a plowman would soon be able to go fairly straight across a field. To ensure an even furrow, a man should set his plow at the proper depth, and keep it there, only altering for the difference between a sharp and dull share. If a man is careless in opening up the lands, or in his plowing, the result is seen at the finish with furrows each side resembling in contour a sea coast with its bays, coves and headlands, entailing a fearful loss of time in finishing, with a very inferior looking piece of land from a plowman's point of view. When plowing is very crooked there is sure to be more unplowed land than when it is straight, because of the crossing of the corners. If a few more plowing matches were brought off in this country, it would be a good thing. Then the boys that are coming up would soon become decent plowmen, and it would become very easy for them to do good work in the fields."

Note.—Our critic is quite right in his criticism, even though it is pretty severe, even for the Northwest. Our Manitoba plowing matches are doing splendid work in the direction he desires.

Grenfell Creamery.

In company with Mr. Trant, secretary of the Regina Agricultural Society, your representative made a call at the Grenfell creamery this week, where we found the obliging butter-maker, S. G. Sanders, hard at work. This creamery opened on May 15, with a guarantee of 500 cows, and up to date (June 21) have made over 7,000 lbs. of butter. Everything about the place was as neat as a new pin.

AT REGINA

Greatest Show
in the West.

The Territorial

THIS YEAR JULY 25, 26. Entries close July 24.

LIVE STOCK. AGRICULTURE
DAIRY PRODUCE. POULTRY.
ATTRACTIONS.

Classes open for everything produced in the home or on the farm in Manitoba or the Northwest.

FOR PRIZE LIST AND ALL INFORMATION APPLY TO

PRESIDENT: G. SPRING-RICE, Esq.
PENSE.

WM. TRANT, Sec., Regina.

The Elevator Grievance.

At a thoroughly representative meeting of farmers, from all parts of Moosomin electoral district, held in Moosomin on June 24, 1899, the following resolutions were passed unanimously:—

Moved by H. Hyde, seconded by S. S. Thompson, "That, whereas the representatives of the elevator companies made a statement before the Parliamentary Committee on the Dominion Elevator Bill, that the farmers of Manitoba and the Northwest Territories were satisfied with the existing elevator system of doing business, and whereas the statement has been made that the request for amendment only comes from professional agitators and political demagogues, it be hereby resolved that this meeting, composed entirely of *bona fide* farmers, wish to emphatically state that they have a grievance, in that they are deprived of a certain share of their legitimate profits by want of competition on the grain market."

Moved by A. W. McClure, seconded by J. McQueen, "That it be further resolved that permission be given to farmers and independent buyers to build and ship through flat warehouses or on board cars with reasonable time to load, and no discrimination."

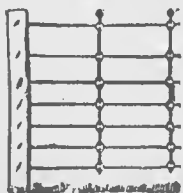
And, with the view of getting similar expressions from all districts in Manitoba and the Northwest Territories, it was agreed to send copies of the above resolutions to all editors, farmers' institutes, statute labor overseers and agriculturists generally throughout Manitoba and the Territories.

The Virtue of Discontent.

"The best resource of the province is undoubtedly the enterprising people who have come here to make their homes. I would venture to call them a discontented people, but I use the word in its best sense. Probably, there are only two classes of men who never know discontent; the thoroughly bad man, who is never discontented with himself, not hoping or desiring anything better; and the man who is just dead. The people of Manitoba are full of ambition, aspiration and hopefulness. These virtues buoy up their spirits during the years of adversity and disappointment which unavoidably come to any people, when they are feeling their way and paying for their experience, in trying to make the best of new conditions. To make your province rich in a safe way, you must multiply your sources of revenue. It will be advantageous to pay a good deal of attention to milch cows, to feed herds of swine, to keep in places where suitable, flocks of sheep, and on every farm, large numbers of poultry. Why do not Manitobans raise turkeys enough to pay for all the groceries and dry goods bought for farmers' homes? By such methods of farming, Manitobans may have a revenue from their farms every month. That can be assured only by drawing it from many sources."—Prof. Robertson.

WIRE ONLY 2½c.

FENCE MACHINE FREE, LICENSE FREE, WITH 100 RODS.



To introduce the Diamond Grip Fence in new localities. Don't have to wind wires around each other (like old woven fences), as cross wires are gripped and protected from weather. Can never slip or break, five times as strong, and lasts ten times as long as any woven fence made. Can use Plain, Coiled Spring, Twist or Barb Wire. Cheapest Fence in the end ever invented. Write quick to

CANADA FENCE CO., LONDON, CANADA.

See us at Winnipeg and all large Fairs.

TRADE BRINGERS.

Little things which we alone handle: Sickle Grinders, Buggy Jacks, Whiffletrees, Neckyokes, Coulters, Wheel Barrows, Etc., Etc.

THE STOCKMAN

Will find that we can fill his every want in Straw Cutters, Grinders, Crushers, Powers, Pulpers, Etc., Etc.

SLEIGHS.

We have without question the finest line of Sleighs that come into the West. See them before placing your order. That is all We ask.

YOU will find us right in the centre of the Machinery Hall at the
WINNIPEG EXHIBITION.

JOHN WATSON MANUFACTURING CO., LTD.

134 PRINCESS STREET, WINNIPEG.

WEST'S FLUID

**Cheapest and most Effective
Disinfectant.**

PREVENTATIVE

Against contagious abortion in cows.

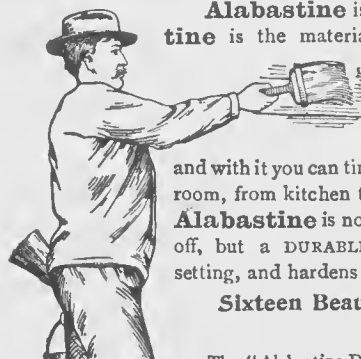
DESTROYS

Ticks, Lice, Fleas, Mange, and all insects upon Sheep, Horses, Cattle, Pigs, Dogs, Poultry, etc.

The West Chemical Company,
TORONTO, ONT.

Church's Alabastine

For Mixing in Cold Water



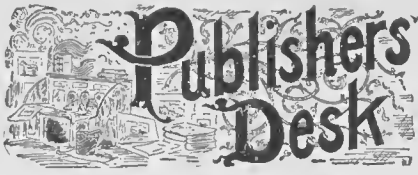
Alabastine is for whitening and tinting your walls. **Alabastine** is the material that has nearly driven all prepared kalsomines out of the market. **Alabastine** comes in dry, powdered form, ready for use by following directions and mixing with COLD WATER. **Alabastine** is put on with an ordinary wall brush, and with it you can tint your walls any color. Try **Alabastine** on any room, from kitchen to parlor, and you will be surprised at the results. **Alabastine** is not perishable like all kalsomines, rubbing and scaling off, but a DURABLE coating that goes through a regular process of setting, and hardens with age.

Sixteen Beautiful Tints and White

For Sale by Paint Dealers Everywhere

The "Alabastine Decorator's Aid" sent free on application. This is a valuable help to anyone wishing to decorate a room. We also supply catalogues of beautiful Stencils which we sell at small cost. Artistic work can be done with them with a little practice.

THE ALABASTINE CO., LIMITED
PARIS, ONT.



This department is designed exclusively for business announcements of advertisers. Statements published herein do not necessarily voice the opinion of this journal.

Messrs. Watt & Albert have received another carload of the quick-selling "Victor" safes.

* * *

Fleming & Son, Brandon, send us a change of advt., which was received too late for this issue, in which is mentioned Fleming's Sheep Dip. Write to them for sample and try it.

* * *

We beg to call the attention of our readers to the special advertisement of the Ontario Wind Engine and Pump Company, Limited, on page 494. This company are continually extending their trade all over the world. Having recently completed arrangements with The Balfour Implement Company, of Winnipeg, whereby they will supply the wants of their Manitoba customers from this point. The fact that their goods have been patronized by the Canadian Pacific Railway all through Ontario, and by the Imperial Government, speaks volumes for them.

* * *

Norval B. Hagar, travelling instructor for the Estate of John Battle, whose letters many of our readers have read with a great deal of interest, is now in Manitoba. Mr. Hagar is at present engaged in giving instructions as to the proper method of using the famous Thorold Hydraulic Cement. He has also under his supervision, in various parts of Manitoba, the construction of many buildings in which cement concrete is the principal material used. Mr. Hagar will deliver addresses at the Farmers' Institute meetings being held this month. The subject of his discourse will be "Cement and Concrete for Farm Buildings," such as basement barn walls, house walls, horse and cow stable floors, cellar floors, silos, hog pen floors and troughs, etc. If any of our readers desire to communicate with Mr. Hagar, a letter addressed to him in care of The Nor'-West Farmer, will reach him promptly.

* * *

We call the attention of our readers to the advertisement of "The Manitoba Anchor Wire Fence Co., Ltd.," on page 495 of this issue. This is a new industry recently established in Winnipeg for the manufacture of farm and ornamental fencing, gates, etc., and the success attending the company's business thus far has largely exceeded their most sanguine expectations, and the business acquired has been solely on merit, the fences being constructed from No. 9 galvanized wire, strengthened by uprights and securely fastened by the anchor clamp, provision being made for expansion and contraction by a self-adjusting ratchet, making the most rigid fence on the market. The manager is prepared to prove to those intending to do fencing that the cost of the "Anchor Fence" is less than barbed wire fences, and possesses features not claimed for any other fence. The company have already erected several fences in the city and several others are under construction. Mention might be made of the Parks Board, who are fencing Dufferin Park. J. H. D. Munson, and the N. P. Railway. The company's offices are located at 120

King Street, with factory on Lombard Street, where samples can be seen and the advantages claimed explained by the manager. We would suggest a visit to their premises or inspect their exhibit on the fair grounds.

* * *

Western Manitoba's Big Fair at Brandon, July 18, 19, 20 and 21. The great holiday and carnival of the year. A grand opportunity of visiting the great Experimental Farm. Special trains and reduced rates will be run from all parts. For particulars see excursion bills or apply to any station agent. Magnificent and costly prizes are being offered for competition in all classes. No expense has been spared this year to obtain the very best attractions that money could procure, they have been specially engaged for Western Manitoba's Fair at Brandon, and will not appear at any other fair in Manitoba. Space will not permit us to mention all the performers, but we might mention Burnhardt & Raymond, wonderful acrobats and tumblers; Biscoe Bros., comic knockabout actors, in their great half-and-half side-splitting performance; F. J. Cash, the great aeronaut, who will make balloon ascensions day and night, falling from a great height with his parachute, the first time ever witnessed in Manitoba; Ledegar & Varnum, mystifying trick cabin act; Louis Gerhardt, the greatest of all contortionists; Perdue & Sisson, comical barrel act; Aimee & Laronge, carrying perch and flying rings acts; Malcolm & Delemore, daring double trapeze acts; "Dr. M.," the highly educated guideless pacer; Leoni & Leoni, Roman ring acts with electric effects; Loubet & Nelson, breakaway ladder act; Grant, the prince of high wire performers, the acknowledged worthy successor of the great Blondin. Speeding events, bicycle races and the gymkhana will again be great attractions. Large purses and prizes are being offered. In the speeding events will be found: 2.30 trot or pace, 2.40 trot or pace, 3.00 trot or pace, free-for-all trot or pace, stallion trot or pace, farmers' green trot or pace, gentlemen's road race, hurdle race, 14-hands pony race (heats), 14½ hands pony race (heats), open run, ½-mile heats, open run, 1-mile dash, farmers' green run, ½-mile heats; team or chariot race, ½-mile heats; team or chariot race, ¾-mile heats, ponies 14½ hands; 1-mile dash, Indian pony race, high jumping for horses, etc., etc. There will be magnificent displays of special fireworks. The Gun Club are making special arrangements for trap shooting, and the Brandon Rifle Association have arranged special matches during the fair. It will be a great week. If you miss it you'll regret it. There will be a large crowd. You'll meet old friends, and all must endeavor when in Brandon to visit the Experimental Farm, which is an object of great value to all, young and old. For prize lists, entry forms and all particulars of the fair, apply to F. J. Clark, Manager, Brandon.

Winnipeg's Pioneer Jewelry Store.

The jewelry establishment of Andrew & Co., 420 Main St. (McIntyre Block), Winnipeg, is the oldest and one of the best known houses of its kind west of Toronto. Founded by Mr. George Andrew, the present proprietor, in 1875, when Winnipeg was a village of less than 3,000 souls, it has steadily kept pace with the phenomenal growth of the city, which now numbers over 50,000 inhabitants. Its situation, in the most desirable location in the city, gives especial prominence to its large show windows, which are always filled with an attractive and tastily arranged display of wares from their various de-

partments, and which are a constant source of delight to passers-by.

The entire interior of the store has just been newly fitted up with the most approved designs in show cases and furnishings, finished in solid cherry, and every device that experience and far seeing ingenuity could suggest has been provided for the comfort and convenience of patrons.

Even a casual observer will be surprised at the great variety of lines represented in the show windows and on entering the establishment his first impression is confirmed by the very complete assortment of seasonable goods. A large portion of the store is devoted to the display of silverware, and it is safe to say that nowhere in the west is to be found such an array of artistic, and at the same time, useful articles in this metal. In addition to the many richly effective designs in silver services, prize cups, tankards, etc., and a great variety of household articles in silver, their showing includes a very complete assortment of new designs in flower pots, fern dishes, candelabra and other ornamental articles.

At this season great interest attaches to the handsome assortment of ladies sashes and buckles, which are such a pleasing feature of recent fashions. Leather goods are constantly growing in popularity and variety, and many elegant and tasteful designs in these useful articles are shown. Cut glass is second only to silverware for handsome gifts, and is seen in many handsome and rich effects. A complete line of field and opera glasses makes an inviting display, while in connection with this a skilled optician devotes his attention to the careful fitting of eye-glasses. Watches and clocks are here to meet all requirements, both of service and purse, and as an adjunct to this is a well organized, perfectly equipped repair department, which is prepared and accustomed to undertake any class of work, from the simplest to the most complex.

If there is one department which bears the impress of the firm's individuality more strongly than another, it is the manufacturing department. In well lighted rooms, with modern appliances, a force of highly skilled jewellers transform into artistic shape the ideas and fancies of their many customers. Gold and silver, diamonds, rubies, sapphires, opals, pearls, and other precious stones are wrought into shapes that delight the most fastidious.

Among the patrons of this house are numbered many of the more wealthy residents of the city, as well as many from that large class whose wants and means are limited, but who must feel assured of the reliability of their purchases. The store is situated in the new McIntyre Block, in the heart of the Winnipeg retail district, within reach of the leading hotels, and is well worth a visit from intending purchasers.

—Intending visitors to the Winnipeg Industrial will be pleased to learn that the city council are making efforts to secure ample accommodation for all who may visit the city. The hotels are well filled with the ordinary travel and cannot begin to handle the crowds that come in ever increasing numbers to Winnipeg's great show. A canvas is being made of the citizens to see how many visitors can be accommodated in private houses, etc. Then it is likely that the city council will take steps to furnish temporary lodgings for all who are likely to attend. The exhibition is a city affair and the citizens of Winnipeg should give their visitors as good a time as possible while attending the show. So no one need stay away from the exhibition through fear of not being able to find good lodging.

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Farmers' Institute Meetings at Yorkton and Saltcoats.

A largely attended meeting at Yorkton was addressed on Monday, 19th June, by Messrs. A. Mackay, Superintendent of the Experimental Farm at Indian Head; Chas. W. Peterson, Deputy Commissioner of Agriculture; and J. W. Mitchell, Superintendent of Western Creameries. The meeting was called to order at two o'clock, and after a few introductory remarks by the chairman, Angus Mackay was invited to address the audience.

MR. MACKAY

Expressed his gratification at having been invited by the local farmers to address the meeting. He had been very much interested in the immigrants camped around the town of Yorkton and he would merely state that if they turned out good farmers they would be a boon to the country, but if not the reverse. He had been treated with great kindness by the farmers in the neighborhood, and after having been driven through the country and seen the intelligent methods of farming in vogue, he did not think it incumbent upon himself to teach them how to farm. Before discussing the subject of agricultural experiments he wished it distinctly understood that the results he was about to lay before them were obtained at Indian Head, and on the principle that "what is meat to one man is poison to another," he would warn them against applying these results in their district without due care. The first thing to consider in all farming operations was the preparation of the land. This was the starting point and too much importance could not be attached to having it well done. If the proper care had been exercised in preparing the land, the chances of obtaining a good crop were vastly increased. Here again he could only give the experience at Indian Head, where the aim had always been to work the land thoroughly and where a crop had been gathered every year. He was quite prepared to state that he had never met with an absolute crop failure in his operation on the experimental farm. Of course, some years crops were better than others, but he had always met with fair success. He considered the question of moisture preservation one of the utmost importance. The main object of summer fallowing was to preserve the moisture in the land and the principal task that the experimental farm had had before it during recent years was to solve this question of moisture preservation through improved methods of cultivation. The speaker could not too strongly emphasize the importance of summer fallowing, not alone with this object in view, but also in order to keep the land clean and to be able to get a crop in early in the season. Our seasons were too short for spring ploughing. This year had been an exception to the general rule, and Mr. Mackay was of opinion that we had more rain this season than at any time during the past 17 years. Speaking further of summer fallowing, Mr. Mackay stated that such work should not be done after the first of July if the year was at all dry. The best time to summer fallow was, undoubtedly, the month of June, as it was necessary that summer fallowing should be ready in time to preserve June rains. Of no less importance was surface cultivation upon summer fall-

owing. The popular idea was that it had a tendency to dry out the land. Such, however, was not the case. The effect of harrowing was to destroy capilarity and thus prevent evaporation of the soil moisture. It was a well known fact that there was a proper season for breaking, which was timed so as to ensure the effect of early rains. If this work was left until after the raining season, the sod would not rot and would be unfit for the following season's crop. He would particularly impress the necessity of summer fallowing upon the minds of the young men present in the audience. We should not do as had been done in other places, leave a legacy of worn-out farms to posterity.

In concluding his address, Mr. Mackay devoted a few remarks as to his experience at the experimental farm in connection with root cultivation and tree planting. The varieties of grain which had been found most successful were undoubtedly Red Fyfe wheat, Banner oat and Odessa barley.

After Mr. Mackay had replied to a number of questions in connection with the results of certain experiments and tests at the Dominion Experimental Farm at Indian Head, the chairman called upon Mr. Peterson, Deputy Commissioner of Agriculture, to address the meeting.

MR. PETERSON,

In his opening remarks, conveyed an apology from the Commissioner of Agriculture, Mr. Bulyea, who was advertised to speak at the meeting, but was unable to attend, owing to the absence from Regina of the other members of the Government. The speaker craved the indulgence of the audience, as he had been unable to gather any material for an address, owing to his having to leave Regina with only a few hours' notice.

RECENT LEGISLATION.

Mr. Peterson then briefly referred to one scope of the recent legislation in connection with agricultural societies. He stated that the policy of the department was to induce agricultural societies to perform the work done by Farmers' Institutes in other provinces. Owing to our scattered settlement, it would be inadvisable to duplicate such institutions, and the ordinance gave ample power to existing societies to deal with these matters. One of the most important objects of agricultural societies was the holding of meetings for the discussion of agricultural subjects. To illustrate the importance of this work elsewhere, the speaker mentioned the fact, that the State of Minnesota expends annually over \$10,000 upon institute work, Ohio \$10,000, New York \$15,000, Ontario \$8,000 and the State of Wisconsin \$12,000. It was easier and more economical to bring practical men face to face with the farmers in meeting assembled, than to place the individual farmer in a position to examine for himself the results of advanced methods of agriculture. The object of such meetings was to provoke discussion and interchange of opinions. One of the objects of agricultural societies was the formation of a reference library and funds might also be expended upon subscriptions to technical periodicals. Something along these lines had been attempted by the agricultural society at Battleford with satisfactory results. Probably the most important work that agricultural societies could undertake was that embodied in sub-section 3 of the section of the ordinance defining the objects of agricultural societies. A valuable work had been done by the experimental farms of the Dominion Government in the way of pointing out improved methods of cultivation and of demonstrating the superiority of new varieties of grains. There was, however, a limit to the scope of these institutions. It was clear that the agricultural societies

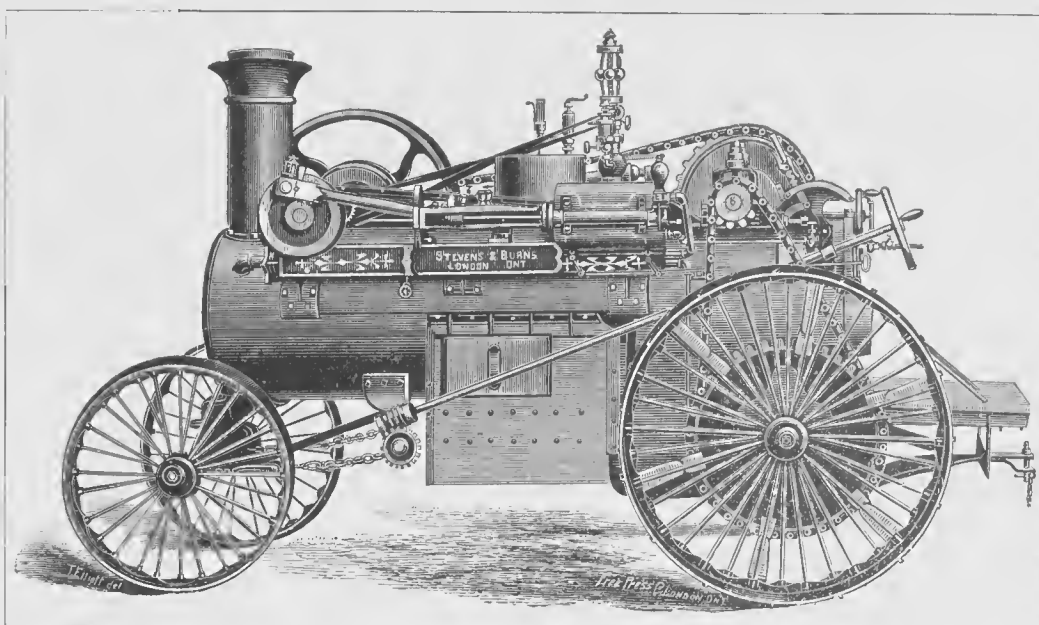
could and should form the connecting link between Government undertakings of this nature and the individual farmer. Much might be done by these societies to extend the value of the experimental farms, and it was clearly their duty to assist the experimental farms in the proper distribution of successful varieties of grain. An arrangement might be made with the Superintendent of the Indian Head Farm to supply sufficient wheat, oats or barley of the varieties considered most suitable for each district to seed an area of some to acres. The society could arrange with one of the best farmers in the district, preferably a member, to raise the crop, and give him a fair allowance for his work and land. The crop from such a field could then be threshed separately, thoroughly cleaned and sold to the members of the society at the ordinary market price. If this policy were generally adopted by Territorial societies, the introduction of superior varieties of grain would be practically solved. The same remarks would, to some extent, apply in connection with the improvement of our live stock. The Qu'Appelle agricultural society undertook to provide pure bred bulls for the use of its members. Two bulls had been purchased this year and brought up under the auspices of the Territorial Government at a cost for transportation of \$5.00 per head. These bulls stood for service at a small fee under certain regulations, and it was expected that the revenue for the same would more than cover the cost of maintenance.

AGRICULTURAL SHOWS.

The next question dealt with by the speaker was the agricultural show. Mr. Peterson contended that agricultural societies wholly misunderstood the objects of their organization. It had in the past, been considered that the holding of an agricultural fair was the sole aim and existence of these societies. This, however, was a fallacious idea. The new ordinance provided machinery for amalgamation of adjoining societies, and it was hoped that the result would be an improvement in the agricultural shows throughout the Territories. Unless liberal prizes were offered, which would induce outside breeders to enter into competition with the farmers in the district, the value of such shows was discounted in advance. The usual practice was that the prizes went, year after year, to half a dozen residents in the immediate vicinity of the show grounds, and the farmers of the district, therefore, had no opportunity of comparing their stock with the animals of some show record, and for this reason no enthusiasm or rivalry was aroused. The speaker also dwelt upon the value of competition in agricultural operations and mentioned the intention of the Regina fair to offer prizes for and encourage ploughing matches. While on this subject, the speaker thought it well to draw attention to the recent action of the Department in offering to supply cattle judges for the Qu'Appelle and Indian Head summer shows. The Commissioner had expressed his willingness to supply judges for all agricultural shows in the Territories, if satisfactory arrangements could be made. It was evident that unless the directors of fairs co-operated to some extent in respect to the dates of their shows, a scheme, such as indicated, would be practically unfeasible. It would be well if the Department at Regina were consulted as to those dates, and if it could be arranged to have the shows take place in sequence, there could be no doubt whatever that the Government would see its way to take entire charge of the judging, at least in the most important classes. It would be an easy matter to obtain cattle judges, qualified to deal both with beef and dairy stock, and horse judges who would have

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the necessary experience to take charge of both the draught and light horse classes. The speaker also drew attention to the offer made by the Department in connection with the proposed exhibits for the Paris International Exhibition of 1900. Prizes would be given at local shows for wheat, oats and barley, the exhibits to become the property of the Government. Agricultural societies holding summer shows, or not holding any exhibitions at all during the year, would be invited to send a sample each of wheat, oats and barley to Regina. After having gathered all exhibits at the Territorial capital, it was the intention to give a first, second and third prize each, for the best exhibits of wheat, oats and barley for the Territories. The prizes would consist of gold, silver and bronze medals and diplomas, and the prize winning exhibits would go to Paris. The speaker then discussed the facilities provided for co-operative efforts in the way of noxious weed and gopher destruction by agricultural societies.

NOXIOUS WEEDS.

The next subject dealt with by the speaker was the question of noxious weeds. Mr. Mackay had spoken of the steps farmers should take to protect themselves against the weed pest. The Government, however, also had a duty to perform in protecting the careful and painstaking farmer against his slovenly neighbor. He explained to the meeting that owing to the large volume of work during 1898, incidental to the organization of the Department and the re-organization of the system of brand allotments, it had been absolutely impossible to devote proper supervision to the field work during the past season. The Department was now, however, in a position to carry out a vigorous policy in this respect. A large number of inspectors had been appointed this spring and also a Territorial official to supervise the field work of the local inspectors. The speaker mentioned an instance where the selling value of a certain quarter section of land had been absolutely reduced to nothing through the land having been overrun with noxious weeds. The evil touched the pockets of the farmer and furnished a conclusive argument in favor of putting forth every effort to combat this menace to profitable farming. The Department had been successful in inducing Professor Fletcher, of the Dominion Experimental Farm staff at Ottawa, to visit the Territories in the interests of noxious weeds eradication. Owing to the limited time at the disposal of Dr. Fletcher, it had been found impossible, this year, to extend his meetings to the northeasterly portion of Assiniboia. It was hoped that arrangements could be made next year for a series of meetings in that portion of the country. Mr. Peterson then dealt with the recent changes in the Noxious Weed Ordinance. Although very little had been done by the Department in the way of enforcing the provisions of the ordinance during 1898, the experience gained had proved conclusively that there were serious defects in the same. These defects had been remedied during the last session of the Assembly. Threshers were now compelled to exercise care in properly cleaning their machines before moving from infested farms, and the Department would insist upon a thorough observation of the law in this respect. It was also the intention to deal vigorously with the mills and elevators. In the past noxious seeds had been scattered broadcast throughout the country by farmers bringing back from town the screenings from their grain for feed purposes. The Department in the future would compel mills and elevators to destroy all infested screenings.

HORSE RAISING.

In closing his address, Mr. Peterson referred to the unlimited possibilities in the

way of heavy draft horse breeding in Northeastern Assiniboia. It was popularly supposed that Western Assiniboia and Alberta would develop into the source of supply of the Manitoba and Southeastern Assiniboia market. Such, however, was not the case. All the heavy draft horses in the western portion of the Territories were required in the Kootenay country and Northern Alberta, and the supply was quite inadequate, so that breeders along the M. & N. W. need fear no competition from that quarter. The speaker then offered a few remarks upon the class of horses required. They should weigh not less than 1,350 lbs., the heavier they were the better. The farmers in Manitoba and Southeastern Assiniboia required teams ready to go to work. It was essential that horses intended for this market should be grain fed and well broken. They could not afford to lay off teams in the wheat raising districts owing to sore shoulders or other avoidable causes; the season for spring work was short, and the demand for horses entirely limited to those in good hard condition ready for work.

In closing his speech, Mr. Peterson thanked the audience for the patient hearing he had been accorded, and stated that it was through no lack of courtesy that he had failed to devote the necessary time to the preparation of a more interesting and instructive address, lack of the necessary time, owing to his hurried departure, must be his excuse.

After Mr. Mitchell had delivered a short address, the usual votes of thanks were passed, the meeting closed, and the following morning the speakers were driven to Salteoats, where a meeting was held in the afternoon.

Perennial Weeds.

Surface cultivation rightly applied is the means by which we expect to subdue annual weeds. But perennials need different treatment. One of the most familiar of our perennials is scutch, couch or quack grass. It finds its way by a principle of natural selection to the low spots of grain fields, and later on principally through the agency of summer fallowing has spread over the drier portions, till it has got to be a very serious case.

There can be no better means of keeping down annual weeds than repeated harrowing on summer fallow breaks. But where a few spots of couch grass exist every round of the harrow breaks off pieces of the roots, and in this way they are spread all over, till, if let alone, they would be a big crop themselves. This grass produces seed if let alone, but it is the roots mainly that are responsible for its abundance on all our grain lands. They are distributed by the harrow just at the season when they can take hold with greatest ease.

How can they be best and most easily got rid of? One learned professor says "by harrowing, drawing the roots together and burning. The hot summer sun will dry a lot of the roots, and in this way, if you work hard, you will beat the couch grass." Every wheat grower here knows that he may spend the value of the whole land on every acre of it and be no nearer a cure than when he began. Such a plan will give little satisfaction anywhere and on our soils is labor thrown away.

More than ten years ago The Farmer was consulted on this subject by a very capable farmer, whose efforts to kill annuals on his fallow break had landed him in a big stand of couch grass all over it. He was advised to let it alone till he had got off a wheat crop, and then proceed to deal with the thick stand of grass in the bottom. Most of its roots were just one year old, and therefore comparatively tender. He was to let the grass make a good start next spring, which it did early in

May, and then plow it well, as his skilled help was well able to do. After that to sow a good full seeding of barley. The green tops of the grass were five inches under ground and therefore could do nothing to help the roots. This check seemed to paralyze the grass, and the barley, which started with a free and vigorous growth, completely choked anything that escaped the deadly effects of the plowing. Years after, when the writer walked over that field, not a sign of the couch grass was visible. Its roots had been turned into food for more profitable crops. The same advice has since been given to many others in the same predicament and always with satisfactory results. If any failure, we have not heard of it.

At a recent meeting of the Pilot Mound Farmers' Institute, James Grieve, Marringhurst, gave his views on the same subject. He first tried summer fallowing and harrowing, but this method only increased the weed, and he had his field full of it, but by plowing deep and late in the fall it was got rid of entirely.

He seems to attribute this very gratifying result to frost killing the roots. This may be to some extent correct. But if the roots had not been turned upside down the frost could have done them no harm whatever. It should be borne in mind that this is not a deep-rooting plant. A furrow six inches deep, clean cut, will turn up about two inches of soil in which there are next to no roots. In this clean soil the grain can be sown by a drill with very little harrowing to rake up loose fragments of root, and with a free-growing crop such as barley on top of it the smothering process is swift and sure.

There are other perennials, such as this, on which deep and good fall plowing has a deadly effect. Further experience by others who have been successful in killing scutch grass will be welcomed.

Diversified Crops Bring Prosperity.

Speaking of the general prosperity of the farmers of the State of Minnesota, E. W. Randall, the Secretary of the State Fair, says:—

"Much of their present prosperity is unquestionably due to the growing tendency in recent years toward a greater diversification of crops. I don't know of anything which goes to prove this more conclusively than the recent report of the bureau of labor of that state. Careful data have been compiled covering a number of years, and in those districts given for the greater part to the cultivation of wheat there has been but little change in the ratio of taxable acres to acres sold under foreclosure, while in those districts where there has been a steady increase in crop diversification the ratio of taxable acres to the other has steadily increased. In the First congressional district in 1880 and 1881, where one acre in 62.5 was sold by foreclosure, in 1896 and 1897 only one in 803.8 was so sold. This is a fair illustration of what has occurred in other parts of the state, and speaks volumes for the benefits to come from crop diversification."

A soil may contain an abundance of plant food, but if there is not sufficient moisture to dissolve it and carry it within reach of plant roots the soil becomes a barren waste. Many of our long-cropped fields are assuming this condition.

Recent search in the Andes range in South America has led to the discovery of a plant known as quinoa. It produces small black seeds rich in starch, which the natives grind into meal. It grows at high altitudes and is evidently worthy of careful future cultivation.

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WHAT AN EMINENT PHYSICIAN SAYS ABOUT THE INJURIOUS LABORS OF HOME LIFE.

Among all the health-destroying occupations in which the housewife may engage, none is more productive of harm than the back-breaking, muscle-twisting, nerve-destroying operation of washing and rubbing clothes on the ordinary washboard. The woman who stands over the tub inhaling the hot, unwholesome vapors, cannot hope to maintain good health, to say nothing of the effect of being confined to a stooping, unnatural position, which in time will wreck the strongest constitution.

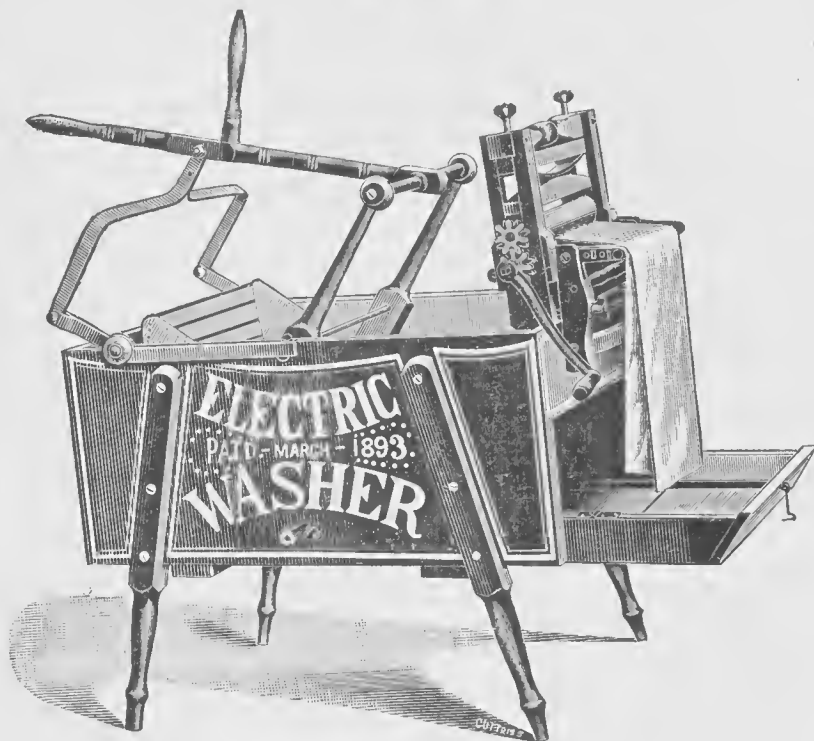
In this age of enlightenment, it is indeed strange that the grave dangers which beset washday under the old condition of things has not resulted in banishing the washboard to the garret along with the candle moulds, the bellows and the ancient tunder box. The woman who insists upon the health-destroying methods, and the man who permits such a cruel and unnecessary sacrifice, has much to answer for.

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This offer only holds good till we secure a good reliable agent in your place, so be quick and avail yourself of this grand opportunity of a lifetime. Also write for prices on Electric Wringers.



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How to Get Better Crops.

The material for discriminating study of the Saunders-Robertson controversy is now before the agricultural public. Dr. Saunders' paper, which appeared in full in our last issue, stated the aims and methods of his work as director of the Experimental Farms of the Dominion, with a detailed exposition of the leading points in his programme, and the critical notice, by way of rebuttal, of the points in which Professor Robertson has traversed his views. So far as we can judge he does not quite make good all his positions, but as the question is a large one and its discussion of deep practical interest, we shall at present confine ourselves to some features of the Robertson programme.

As an authority on dairying, practical and scientific, it would be difficult to find a safer guide. But he is less at home in the field, more dependent upon the blue books than on his own clear knowledge, and the case he makes, though very strong in the main, has some rather weak links.

FAR-FETCHED IMPORTATIONS.

There was a time when a good deal was expected from Russian varieties of wheat,

to go from our own neighborhood in search of improved seed. It is quite as good policy to keep on sowing the best of the best of what you can grow at home or on the next farm to you.

While heartily accepting the doctrine that the best of the crop should be used as seed, we think that is only a half truth, and, like all other half truths, very misleading. The almost universal faith in a change of seed is, we think, a great deal more than a mere pious opinion handed down by tradition from the fathers. Shallow people may blunder in their choice of a change, but a wisely planned change of seed we believe to be of the essence of good farming. There is no one point more clearly established by universal consent than the extra productiveness of northern grown seed carried south, over the best of the native stock. And it is equally certain that southern seed, say of wheat, carried north is less productive than the home product. Let it be kept in mind that the men whom we look to as authorities on this question are governed by ideas and not by mere shibboleths. The fathers from whom this faith has been inherited wanted a good variety to

as if they were 10 or 20 miles away. And we guess that it is much oftener from this upland section that the seed of next year's plots is drawn than from the test plots themselves. If all other things were equal we should go to the high end of the farm for our seed and it is more than likely Mr. Bedford is of the same opinion.

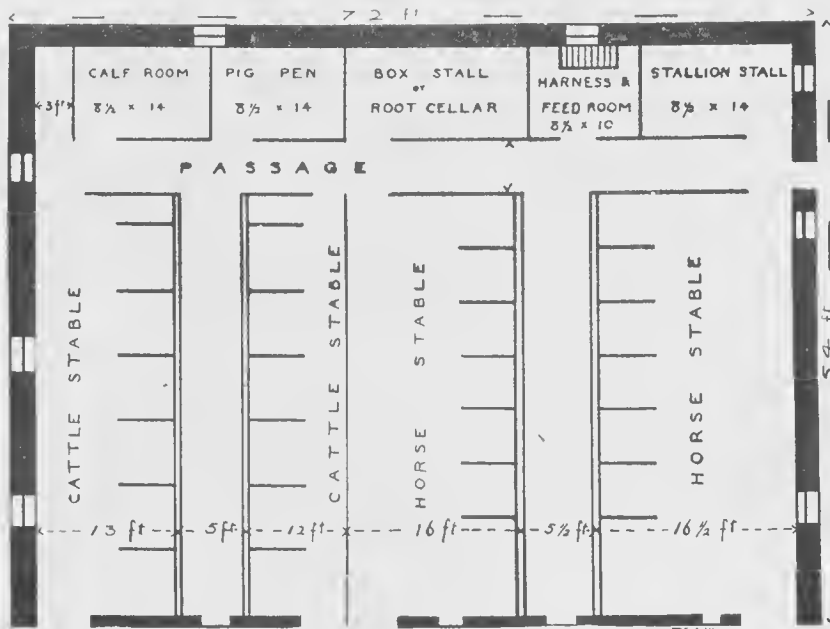
SELECTION OF SEED.

Selection by hand of a limited number of superior plants out of a large crop has been the source of most of our superior sorts, Red Fyfe among the number. By working on this line for a few years, taking always the cream of the cream, "improved Pedigree" seeds of a great many sorts have been secured and may in future continue to be got. There can be little doubt that injudicious and unskilful selection and manuring of the soil on which such picked seeds were sown have done much to defeat, or at all events keep down, the advantage derivable from the original selection. The men who selected sound old turf for their propagating grounds were bound to be most successful and were always found so. Here again the principle formulated by Professor Robertson of restraint of vegetative growth as a means to concentrated vigor in the seed has been long acted on by improvers even when imperfectly understood by themselves. So far as we have learned he has paid less attention to the results to be derived from special adaptation of the soil itself than he might have done. There are soils in Manitoba, for example, from which no man of experience would expect a high grade sample of Red Fyfe. Not only seeds but the quality of living animals is influenced by the nature of the soil from which their food is taken, and the man who undertakes to select without reference to this point is bound to work at a disadvantage.

In trying to secure the highest possible vitality in the seed we are to sow, soil and climate must be taken into account. Seasons also differ. The varying percentages of our highest grade wheat, as shown by the annual reports of grain inspection, prove how great is the influence of season alone. Even in the same field there may be samples of differing value largely due to differences in the soil of that field. S. J. Thompson, V.S., of Carberry, has been a pretty successful competitor for wheat prizes and he is careful to keep separate the grain from selected spots of the field from which he means to save his seed. Mr. Thompson thinks too early cutting injurious and allows those intended seed patches to stand a few days after the rest of the field is cut. Professor Robertson advocates the same principle—when seed in bulk is to be collected. The seed on the Brandon Farm, besides being taken from plots whose vital qualities are assumed to stand highest, is dressed down by the fanners to about one-third the total quantity. Mr. Bedford's reports show that his yields, reasonably attributable to this selection, are gradually rising to a higher level, but the lesson would be more conclusive if the rejected sample could be grown continuously alongside the best. The argument for selection may be quite sound, but would be much stronger if the secondary sample, otherwise good enough, could be put in evidence.

Mechanical selection of seed by different methods is about the only way of selecting on a large scale. Running grain over a screen makes the largest seeds roll furthest out on the barn floor. Such methods have long been acted on by improving farmers. The germ may be as strong in smaller as in larger berries, but the stock of plant food in the largest is a manifest advantage in a season of backward germination. Size without special quality is of no account in seed improvement.

With the qualifications we have pointed



Plan of Donald Fraser's Stable, Neepawa, Man.

Reference to this barn was made in a former issue.

when once naturalized here. Every year's experience goes to show the futility of that expectation. The latest example may be quoted here. Nebraska Station, in its second year's tests of 137 imported varieties of Russian wheat, finds three or four that make a fair showing, but not one that fills the bill in regard to hardness. On the other hand, three American varieties, Turkish Red, Big Frame and Currell, that have been tested at the station for several years, and selected on account of their hardness, are in good condition. These wheats, 140 in all, were all grown in the same field.

We can only repeat what we said in our last issue that this country would have been no loser had these far-fetched varieties been unknown here, and with very little qualification we would say the same of their hybrids. With all that Professor Robertson can say on the failure, past and prospective, of far-fetched varieties, we can heartily agree. Brome grass, we gladly admit, atones for a good many such failures.

CHANGE OF SEED.

If we rightly understand Professor Robertson's position, his contention is that there is seldom or never any occasion

begin with. Seed of that sort from recently broken turf on a sound bottom was what they pinned their faith to all along and that faith was confirmed by uniformly satisfactory results. Distance has very little to do with the real merits. We would far rather pin our faith to a car of 1 hard from say Sintaluta, or from sound breaking five miles away, as a desirable change for any township in Manitoba, to the chances of finding one out of ten score of varieties collected from any or all other countries where wheat is a staple product. The climate, the soil, the newness of the land are all favorable to high vitality. Chemical analyses and practical tests, without number, steadily pile up the evidence in favor of such a change, especially for soils of secondary quality. You may manure or fallow with your best skill on such soils and their product will not be choice seed, dress it as you will, either to keep at home or sell elsewhere.

We would here suggest that the example of Mr. Bedford's success with home grown seed does not help Professor Robertson's case so much as he thinks. The upland portion of the Brandon Farm is as different in some ways from the flats on which the experimental plots are grown

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out we very decidedly support the leading points in Prof. Robertson's case. To depend mainly on the best varieties of what we raise at or near home to aim for that purpose at securing by the likeliest means vitality, hereditary and acquired, and by good farming to reap the best yields, our picked seed, soil and climate, will admit of is, we hold with Professor Robertson, to be the essence of good farming.

BIG SEED.

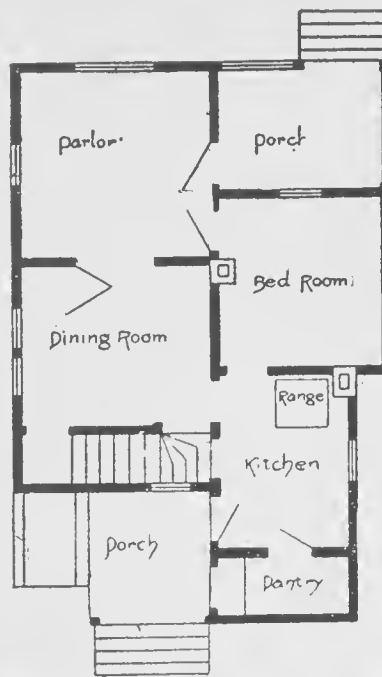
But when he goes on to argue for the biggest berries as the best seed, we regard that as another half truth. His argument, too was built on half tests. Mr. Bedford, for example, dresses out, say, one-fourth of his grain to be used as seed for next year's plots. And Mr. Zavitz has gone still finer and selected 100 of the biggest grains to test against 100 of medium size. But has Mr. Bedford any sustained tests of seed from which the lightest and heaviest fourth parts have been eliminated and 100 or 10 lbs. of each grade of size continuously tested for, say, five successive years? Or has Mr. Zavitz done the same thing? If 10 or 100 lbs. of the very biggest berries could be selected from 10 or 100 bushels of the product of the same sound land, there are a good many men who would back the same weight of good average size against the big fellows. The argument for size, per se, wants a good deal more confirmation before it is proper to ask the farming world to make it a part of its creed.

A Cheap Farm House.

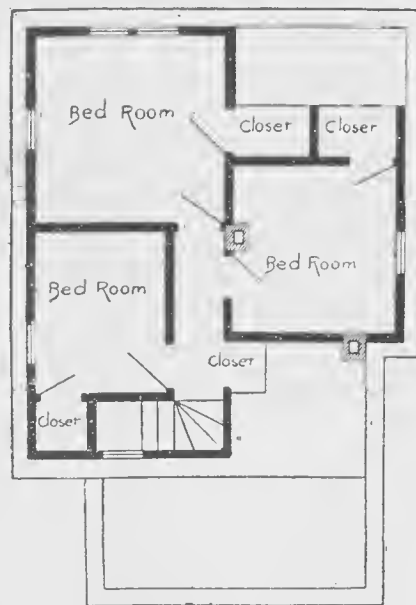
The Farmer has been asked time and again for a plan of a cheap farm house. We have given plans of houses from time to time from which plans can be made and good buildings erected at a cost to suit the builder. In this issue another plan is given of a small house which should not cost more than \$600. Of course, in very cheap structures all conveniences cannot be had, and neither, very often, is the building as warm as a more expensive house. No size is noted, for this feature can be arranged to suit the cost of material in each locality.

The frame is an ordinary balloon frame, with a cellar under the dining room, having an outside as well as inside entrance. Closets are placed throughout the house in convenient places so as to be out of the way as much as possible yet easy of access. As many closets as possible should be placed in every farm house. They are always useful. Fit up the pantry with shelves and drawers and all things handy for work. It saves many a step in the course of a

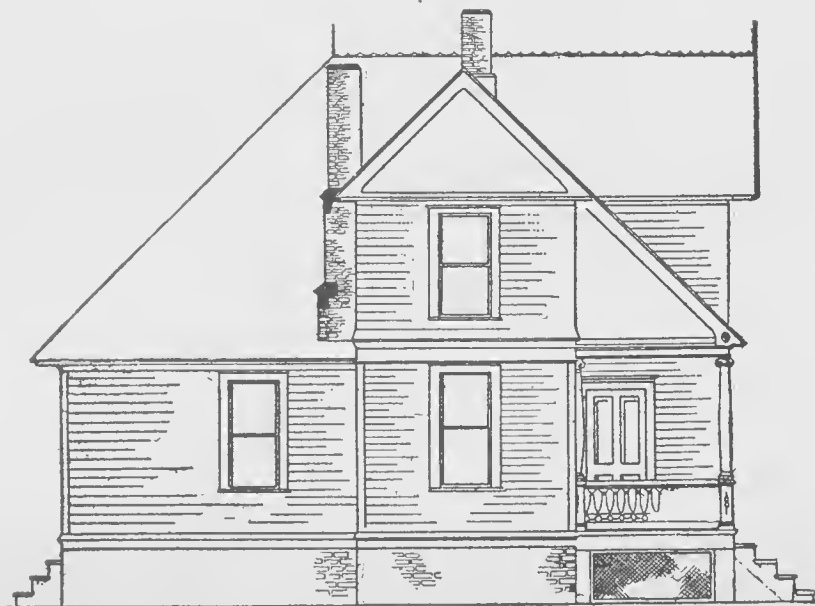
day. The house will be found easily heated, a most important item in this country.



2. GROUND FLOOR PLAN.



3. PLAN OF BEDROOMS.



1. SIDE ELEVATION OF HOUSE.

Pointers on Irrigation.

In Southern Alberta and in Assiniboia as well, the rainfall is hardly sufficient for growing crops with a regularity and certainty necessary in successful farming, and sooner or later some system of irrigation will have to be adopted. The Federal Government are favorably disposed to irrigation schemes for these districts. The Farmer notes with pleasure the construction of irrigation works on a very extensive scale in Southern Alberta, and in a small way at many other points throughout the west. As many of our farmers have not had any experience along this line progress at first will be necessarily somewhat slow until some experience has been gained from actual experience and from the experience of our neighbors to the south of us.

The Mormons at Cardston are well versed in irrigation methods and from them, no doubt, our settlers will learn many useful ideas and methods of using water. There is no doubt that the plants growing in semi-arid districts send their roots deeper into the soil in search of water than in more humid regions and for this reason a study should be made of the nature of the soil and subsoil of land that it is proposed to irrigate. The following thoughts along this line by director Hilgard, of the California Experiment Station, will be of interest. No man is better posted on the subject than he is and therefore his ideas should carry weight. He says in Bulletin 121:—

The most economical mode of using irrigation water is to put it "where it will do the most good," close to the stem of the plant or trunk of the tree, and let it soak downward, so as to form a moist path for the roots to follow to the greatest possible depth. It cannot be too strongly insisted upon that in our arid climate farmers should make themselves most thoroughly acquainted with their subsoil down to a depth of at least 4, but preferably 6 of 8 feet. Similarly, no irrigator should be ignorant of the time or amount of water it takes to wet his soil to a certain depth. A definite knowledge of the rapidity with which irrigation penetrates downward and sideways in the soil should form a part of the mental equipment of every irrigator, particularly in arranging his head ditches.

Supposing the moisture to have reached the depths of the soil, whether from rains or from irrigation, it is essential that proper means be employed for retaining it in the land, and especially to prevent evaporation. That this is best accomplished by a mulch on the surface, and that the best mulch for the purpose, which need not be hauled off or on and is always ready, is a surface layer of loose, well-tilled soil, is now pretty well understood by all. In the east, where this principle is well understood, it is considered that a surface layer of three inches in thickness is sufficient to afford effective protection. But what is adequate in the region of summer rains is quite insufficient in California and in the arid region generally. It takes fully twice the thickness mentioned, and preferably more, to afford protection against the drouth and heat lasting five or six months at a stretch.

Lansdowne Municipal Council has decided to raise a loan of \$3,000 for drainage purposes.

The Farmers' Milling Company of Fort Saskatchewan has now been formally organized and building will be commenced immediately. Machinery of the latest and best type will be supplied by Goldie & McCulloch, Galt. It is the intention of the company to handle this season's crop and but for the delay in obtaining the charter, the building would have been up by this time as the timber is already prepared.

Use Press Wheels.

One point made by S. J. Thompson at the Brandon meeting we would like to bring out in force. Referring to the question of rolling, as applied to this country, he said farmers should not take the press wheels off their seeders. They are better for the purpose than any roller. Besides pressing down the mould just on top of the seed, they act as a preventive to blowing, while the roller actually encourages it. To save labor in draft by dispensing with the press wheels is one of the shallowest delusions that ever got hold of the farmers of this country.

Maintaining Fertility.

In a recent address before the Farmers' and Dairymen's Association of New Brunswick, Prof. Shutt, of the Central Experimental Farm, Ottawa, said, on the subject of maintaining the fertility of the soil, that the three elements of which plants more particularly exhaust the soil are:—

Nitrogen, phosphoric acid and potash.

The two latter being derived from the soil, the former *ultimately* from the air. While large quantities of these constituents may be in the soil, they may not be in a condition in which plants can readily make use of them.

The nitrogen in the soil is found most largely in the humus or vegetable matter. This is the storehouse of nitrogen, hence the smaller the proportion of humus the poorer will be the soil of this necessary element. Continual cropping exhausts the soil of its store of fertility. The selling of coarse grains from the farm is therefore a wasteful practice.

Our great problem is to follow a system which will overcome this. By a wise provision of nature the fertility of the soil is but slowly available. The tillage of the soil is therefore as important as the amount of fertility present. The production of the soil depends largely upon its capacity for absorbing and retaining moisture. The object of fine and deep cultivation is to increase the area in which the plant rootlets can feed. Why do we plow? The plow cuts off and inverts a slice of soil, increasing the distance between the particles, increasing the soil's absorptive capacity and making it more permeable by the air. It also serves the purpose of correcting sourness in the soil, at the same time rendering the soil more mellow and friable. The results in the soil of proper plowing are:—

1. The rendering available of plant food.
2. Increasing its absorptive capacity.
3. The active forces of the air have a greater chance to operate.
4. The water level is covered.

Drainage lowers the water level, admits the air and results in an improved texture in the surface of the soil.

Harrowing levels the surface and makes a finer tilth, providing a mulch to retain the moisture of the subsoil for the use of crops during the growing season.

Rolling causes a rise of moisture from the lower layers to the upper ones for the use of growing crops. The ideal practice would be to follow the rolling by a light harrowing in order to retain this moisture near the surface and prevent its passing off into the atmosphere.

Subsoiling is not deep plowing; it is simply a loosening up of the under soil but not bringing it to the surface. It increases the area for root growth and further aids in the retention of moisture. Spading over is the ideal method of tillage. Our ordinary system of continued plowing at one depth has finally the effect of forming a hard pan where the plow sole has so often compacted the earth in passing over.

Canadian Ideas Abroad.

Professor Robertson, of Canada, recently threw out a capital hint regarding the selection and propagation of seeds, which it will be well for farmers to ponder carefully. He said that whilst the characteristics of each variety were, broadly, the same in all districts, productiveness varied according to locality, and that it was only by careful observation and selection of seed from the most vigorous plants in each locality that the best results could be obtained in the different localities. This is undoubtedly true, and opens up a profitable field to every farmer for selection and cultivation, and it is an occupation which requires no special training. The farmer simply takes what Nature has produced and puts the hallmark of excellence on, and he follows on the lines she indicates. It is quite another thing to set out on a series of elaborate experiments to produce novelties. Let farmers take the hint, and during the coming summer select both seeds and roots for future special cultivation.

We have repeatedly urged in these columns that every farmer should, in a limited sense, be an experimenter, as each locality, and even each farm, calls for different treatment. It is an undoubted fact that the results or lessons of any experiments, no matter how skilfully conducted, are only generally useful in a limited sense. Apparently the most conclusive results from certain manures and styles of cultivation in one district should be received and acted on with caution by farmers residing in other districts, and any change of practice in cultivation or the application of manures should be first of all tried on a limited scale by each farmer for himself before launching too heavily into it. This is where the value comes in of each farmer testing for himself both seeds and manures before adopting them extensively in his practice.—Scottish Farmer.

The New Zealand wheat harvest of 1898 showed an average yield of no less than 17.95 bushels to the acre, the crop actually reaped being returned officially at 5,670,017 bushels, against 5,925,523 bushels for the previous year. It appears that the quantity of wheat from the previous season's harvest held by farmers was barely enough to meet the consumptive needs of the colony.

Sidney will soon have a flour mill, arrangements having been almost completed. A bonus will be raised by private subscription and a 75 barrel mill with a 25,000 bushel elevator will be built this summer. Sidney is an ideal location for a mill, there being plenty of wood and water in the immediate neighborhood and the surrounding country being one of the best wheat districts in Manitoba.

The farmer must keep pace with competition and the hurrying times, hence agricultural shows have become practically necessary. Agricultural shows are the means of bringing together for public exhibition the product of all classes of thought and inventive genius bearing upon agriculture (viz., improved breeds of domestic animals and poultry; also labor-saving appliances, as fast as they are evolved). It cannot be denied that shows are beneficial in an educative sense, and, therefore, are of commercial value to the farmer. Further, they constitute a profitable holiday for the farmer, and he must be dull-witted who returns therefrom without gain. Again, they undoubtedly prompt men to produce better stock, etc., and enable the farmer to safely see and select that implement or utensil best adapted to his use without the risk of buying from an advertisement a probably useless article.

Agriculture in Finland.

Just now, when there is some talk of the Finns leaving their country, the following account of them will be interesting reading, and especially so as they have their eyes on Western Canada. It is written by an Englishman, who has lived among these people for twenty years, and he considers them vastly superior to the Russian peasantry:—

Within the last century, he says, their country has undergone a complete transformation, in spite of the rigors of the climate. It appears that there are government agricultural advisers, called agronomes, whose services are available for every farmer at the small cost of entertaining one of them and his horse so long as he stays on the farm. This official, who must have passed through the government agricultural schools, advises the farmer as to the draining, manuring, etc., of his bogs and fields. Certificated dairy maids are also provided to teach him how to feed his cows rationally and to make butter, which is one of the chief articles of export. Education is at a high standard, in fact, and schools are plentiful and well supplied with high-class and well-paid teachers. Nearly all peasants can read and write. They cannot be married by a priest without receiving sacrament, and must be able to read in order to be admitted to the holy communion. Honesty is one of the national characteristics, except among the population inhabiting the frontier districts bordering on Russia, where bad example has had its usual effect. The law is administered with remarkable impartiality, and bribery and corruption are almost unknown among government officials. The writer says that the Finns dislike and despise the Russians, whom they regard as their inferiors, but, nevertheless, have never waived in their loyalty to the Czar. He describes Finland as the one healthy limb attached to the colossal and diseased carcass of Russia.

A writer in the Bombay Guardian gives the following as a sure preventive against an invasion of mosquitoes: Throw a bit of alum, about the size of a marble, into a small bowl of water, and wet the hands and face and any exposed parts lightly with it. Not a mosquito will approach you. They hum about a little and disappear. I have never had any occasion to use a mosquito curtain, and am glad to think that I can perhaps benefit others (travellers in particular) by this little bit of information.

The amount of water used by growing crops during their season of growth is enormous. Professor King found that in Wisconsin the amount of water used in growing a crop of dent corn and that lost in evaporation from the land was 309 tons, or 2.64 inches of water for each ton of dry matter. With clover these quantities were 462 tons and 4.03 inches of water, and with oats 522.4 tons and 4.76 inches of water. This gives us some idea of the enormous quantities of water required to grow our ordinary crops.

Contractor G. W. Ulyot, of Manitou, has the reputation of being a hustler, but his recent effort has eclipsed everything of the kind in Southern Manitoba if not in the province. On Tuesday morning he took 17 men, laid the floor of a 25,000 bushel elevator at Darlingford—8 miles east of Manitou—put in the hoppers, bins, etc., erected the building, using 78,000 ft. of scantling and plank, driving 2,700 lbs. of wire spikes and completed it ready for the metal siding by Friday night, some of the men not working steadily.

J. E. Smith, Brandon, Man, intends holding annual auction sales of Clydesdales and Shorthorns. The first of these will be held early in November, 1899.

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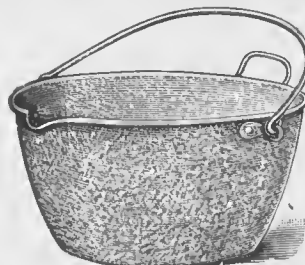
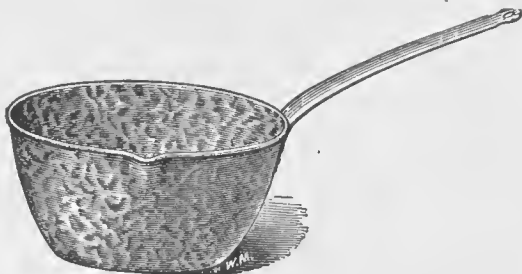
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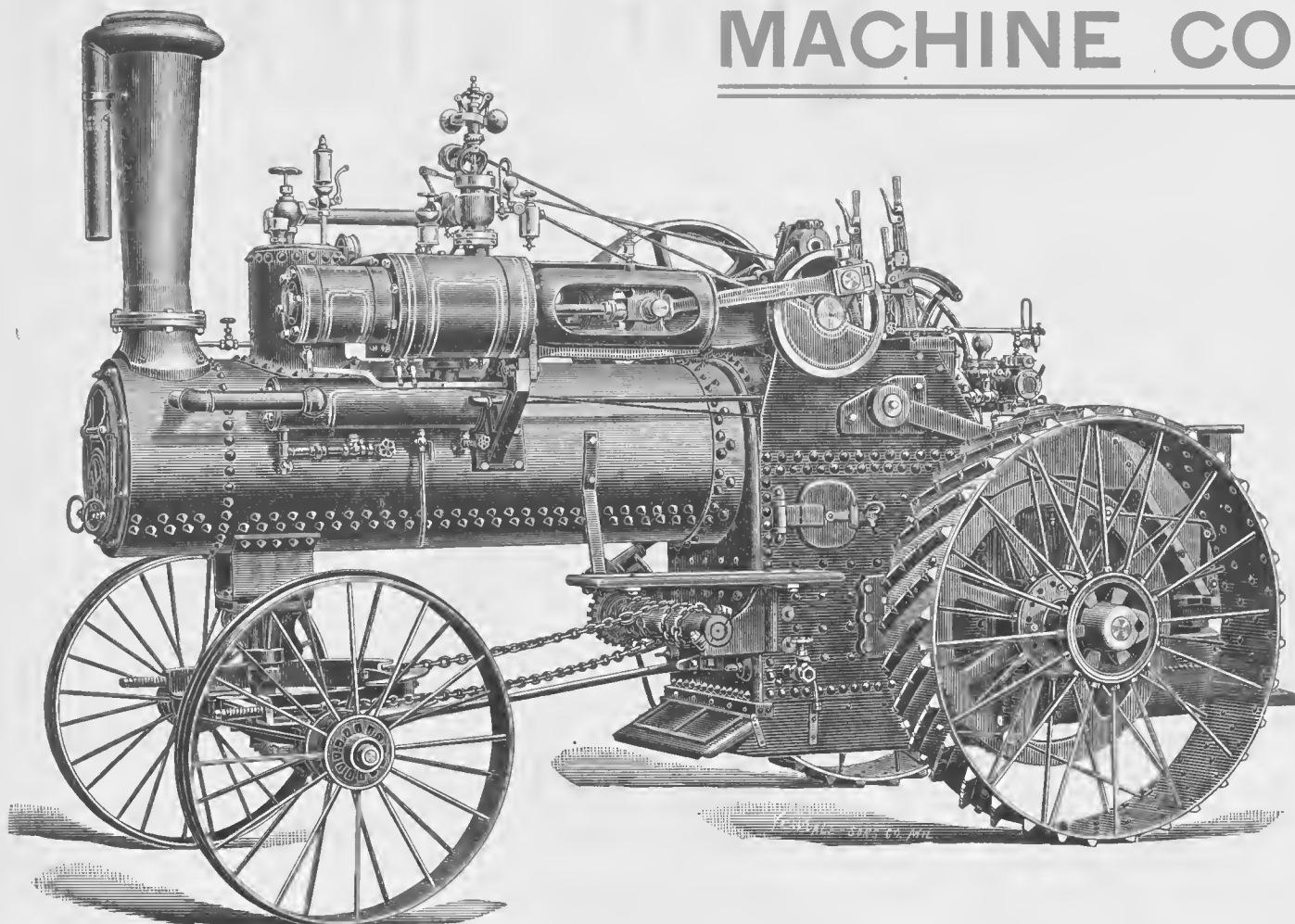
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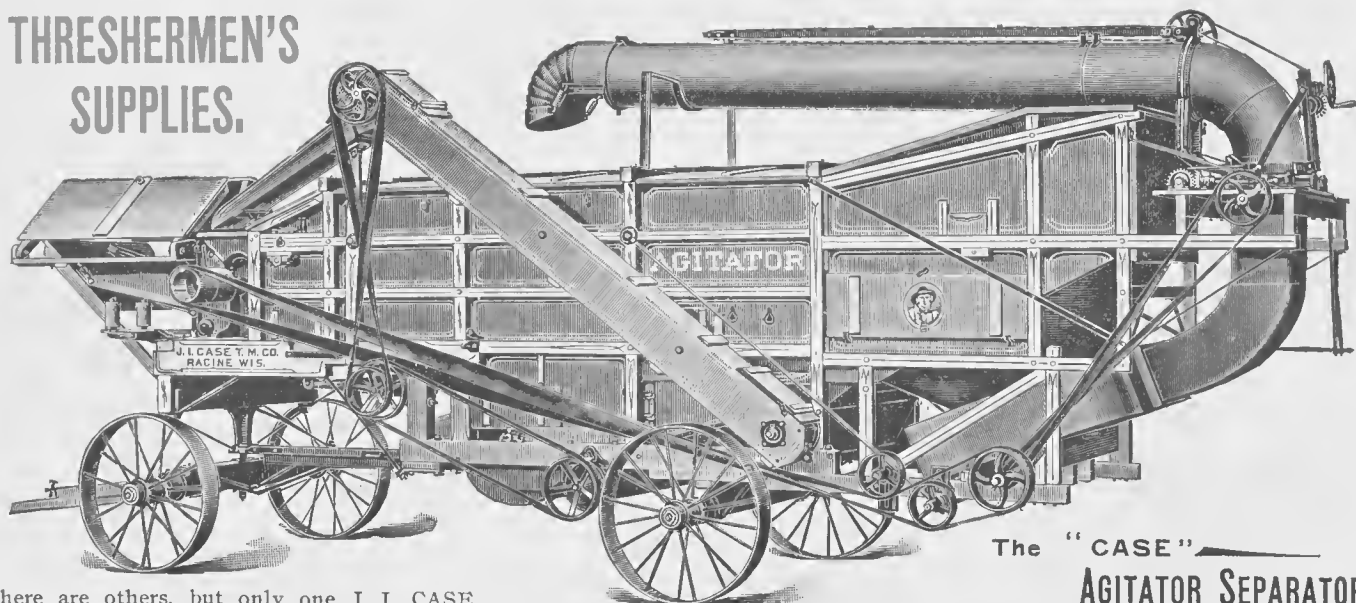
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WINNIPEG BRANCH.

Leaving the Farm in England.

This is a perennial topic, and there can be no question of the fact that in all countries where improved machinery is employed far fewer men are required to carry on the operations of the farm than in bygone times. Yet so far from this tending to redundancy of rural population the current runs all the other way. The second and third generations on Ontario farms leave a very small proportion of their number on the land where their fathers and grandfathers were hard-working pioneers, and but for the immigration of robust workmen from the rural districts of Europe the States would be in much the same, or even worse, predicament. It was remarked many years ago that but for the Irish immigration, New England's rural population would not reproduce itself as fast as the parent stock died out.

* * *

In England the flow of farming population to the cities has of late been greater than ever before, and public attention has been drawn to the subject by the writings of Rider Haggard, the well-known novelist. He is not only a master in the realms of fiction, but also a land-owner and practical farmer, and what he has had to say about his experience along that line has been thought well worthy of attention by both farming journals and social economists. His handling of the facts that have come under his own observation has attracted more attention than if he had been all his life a farmer, and though there was a spice of humorous exaggeration in some chapters of his farming records, his clearness of insight could not be denied. In his own experience he finds that though both able and willing to pay for a superior young man, who could be trusted to care for and operate modern labor-saving appliances, no such man was forthcoming.

* * *

Only men of advanced years stay on the farm, while the young and adventurous go out to the cities, and somehow they rarely find their way back again. Wages in most parts of England have been very low for rural laborers, but they have gradually improved, though not so fast as in the towns. The townward drift has of late been greatly intensified, ordinary laborers being this year in special demand at considerably increased wages. Perhaps never before has all kinds of employment been more abundant in Britain than this year, and the shorter hours and better pay for city work are drawing poorly skilled labor faster cityward than ever before.

* * *

The latest reports show a general rise in the wages of farm labor, but the prospects, as indicated by Mr. Haggard, are that before long the area under cultivation will be much smaller than it even now is. Rents for all kinds of land have been gradually shrinking, because even with the comparatively low wages going prices of produce had been broken by foreign and colonial competition. Now that higher wages must be paid, the possibility of paying rent is proportionately diminished, for the tenant farmer, the middle-man of the agricultural combination, has been making gradually less as the return for his skill as a manager and the large capital he must sink in his business. From \$40 to \$50 an acre is the tenant's financial investment, and it takes some skill at the present date to tide over the year without a shrinkage of value in the working equipment. The English farmer is much more methodical in such matters as book-keeping and stock-taking than any other farmer elsewhere, and this annual stock-taking has little tendency to encourage him in deeper investments.

* * *

The transportation question, even within the limited area of Britain is regarded as

highly important in its bearing on agricultural prosperity, and they have as many grievances on hand as any farmer on this continent.

* * *

One supreme advantage enjoyed by the western farmer over his old country rival is the virgin soil, its cheapness and the ease with which it can be cultivated. It seems strange that grain and stock can be produced here, 1,500 miles from the seaboard, with 3,000 miles more of ocean carriage, so cheaply and abundantly as to make farming close to the point of ultimate consumption a losing venture, yet such is the state of things in Britain, as declared by men of reliable insight and experience.

Leaving the Farm in Manitoba.

The same tendency noted in England to leave the farm and take up work in the city is almost as strong in the United States and Canada. It is very noticeable in many parts of Ontario, and can be readily seen in Manitoba, new as it is. The result is that the competition between young men for situations is very keen. They have cut wages, and this cut is bearing particularly hard on the heads of families. The old men having families dependent upon them must accept low wages or be supplanted by aspiring youths. If an old man gets out of work through his firm giving up business or for other reasons it is almost impossible to get steady permanent work at remunerative wages. Employers prefer the inexperienced young man.

* * *

The result is that many city men are turning their eyes to the country, as they see that a man with a farm is independent of all these fluctuations. If farmers' boys knew how well off they were they would stay on the farm. We have said it before and say it again, the same energy and determination that are required to succeed in life in the city, if put into play in the work of the farm, will make the farm work a success and bring the boy or man out as a leader in a profession where there is more room at the top than in any other profession under the sun.

* * *

Then, too, boys and girls are brought up with the idea that to be a school teacher or a clerk in the village store, is getting up in life, that they are then on a higher social plane than that of the farm. This idea is inculcated in their young minds from infancy. How often we hear the remark passed about a farmer, "He's only a farmer." How often do we hide behind the statement, "Oh! I'm only a farmer?" So long as we as farmers belittle our own calling so long will we be called hayseeds, mossbacks, and clodhoppers. There is no reason why we should be such things, even if we are called them. Teach the boys and girls that there is no better, more independent and satisfactory calling than that of the farmer. Believe in it ourselves, and then those of other callings will respect us. We are like what Shakespeare makes Cassius say in his Julius Caesar:—

"The fault, dear Brutus, is not in our stars

But in ourselves, that we are underlings."

* * *

There is nothing wrong with the calling. There is hard, disagreeable work connected with it. So there is with every other line of work. The fault lies with our ideas. Let us work at these things in their true light.

The roots of strawberries are contained in a very small space. They extend horizontally scarcely beyond the ends of the leaves, while very few roots reach a depth of two feet.

Value of Lightning Rods.

One of the best evidences of the value of lightning rods up to date has been afforded by the Washington monument. It is capped by a small four-sided pyramid of aluminum, which metal, so cheap to-day, was very costly at the time of the building of the greatest obelisk the world has ever known. The aluminum tip is connected with the ground by four copper rods which go down into the earth. On April 5, 1885, the monument was struck fiercely five times, but it suffered no damage whatever. On June 15th of the same year a more tremendous assault was made on the monument from the heavens and the result was a fracture of the topmost stones. The crack still remains to show what nature can do in the way of an electric shock, but the slighness of the damage is evidence of man's power to protect himself from such attacks. The obelisk is ideally located for attracting electric assaults from the skies, and yet, many times hit, it has snuffered only once, and that time to a trifling extent. The statue of Liberty, New York harbor, is protected by copper rods united to the figure and extending through the pedestal to copper plates buried in wet ground beneath the foundation. Lightning has never injured the statue in the least.—Scientific American.

How the Climate May be Changed.

The Strathclair correspondent of the Hamiota Hustler writes the following suggestive notes:—

June has come in fine and warm, but with frequent thunderstorms and an occasional cyclone or hailstorm. And the question of hail insurance is up again, but very few seem to realize that we are responsible as a province for the electrical disturbances that are doing so much damage to the crops every year now. It is a well-known fact that constant currents of electricity are passing from north to south, as any one can see by looking at the needle of the compass, and trees are the natural conductors of the surplus to the ground when the atmosphere is overcharged with electricity and every green tree, such as pine and spruce is very strongly magnetic. Twenty years ago our province was protected on the north by the Riding mountains, covered by a splendid belt of spruce timber, effectually regulating the electrical condition of the atmosphere, but we proceeded, by our representatives, to parcel out and sell the timber to individuals or companies, who proceeded to cut down and remove the best of the timber without making the least provision for saving the young trees or the other kinds of timber, but just leaving the limits in the best possible condition for a great fire which has always been sure to come, until our beautiful belt of timber, about 100 miles long and from 30 to 40 miles wide, is now a scene of desolation that needs to be seen to enable any person to realize the destruction of forests that has taken place. And in proportion as the fires have done their work have the cyclones and hailstorms increased, until as many as five hailstorms have come in one summer; and it is probable that the destruction of property caused by one storm would more than cover all we have received for the timber removed from the mountain. It looks as if we have been "Penny wise and pound foolish."

Raspberry roots grown by Prof. E. S. Goff, of Wisconsin Experiment Station, extended horizontally a distance of 4 ft. from the main stem and vertically frequently more than 5 ft. The main roots, however, are quite near the surface, which points to the desirability of giving this crop shallow cultivation.

Cement Concrete and Farm Buildings.

Synopsis of an Address Given by Norval B. Hagar at the June Institute Meetings.

The use of cement concrete for building farm structures is growing rapidly in favor of recent years, as farmers understand how to use it. It provides a most durable building, dry, frost-proof and in every way superior to one built of either wood, or

cement. Now fill this box with gravel as often as you wish to gauge the concrete for walls. It is usually five of gravel to one of cement. You can lift the box up easily, letting the gravel go through. By measuring your gravel this way there can be no mistake, and every batch will be gauged exactly alike, and it is far better than measuring it with a shovel. The cement need not be measured at all, as every sack weighs the same. Now, take and shovel this cement and gravel over at least twice before wetting. In doing this, if care is taken in shovelling it over and dropping every shovelful in the same spot, the gravel will

sprinkler will distribute the water evenly all over the concrete, and will save so much shovelling. This concrete should not be made too wet—just wet enough to resemble moist earth. By taking it up in the hand it will pack nicely, but will not leave any moisture on the hand. Many a wall or floor has been spoiled by the too free use of water in mixing it.

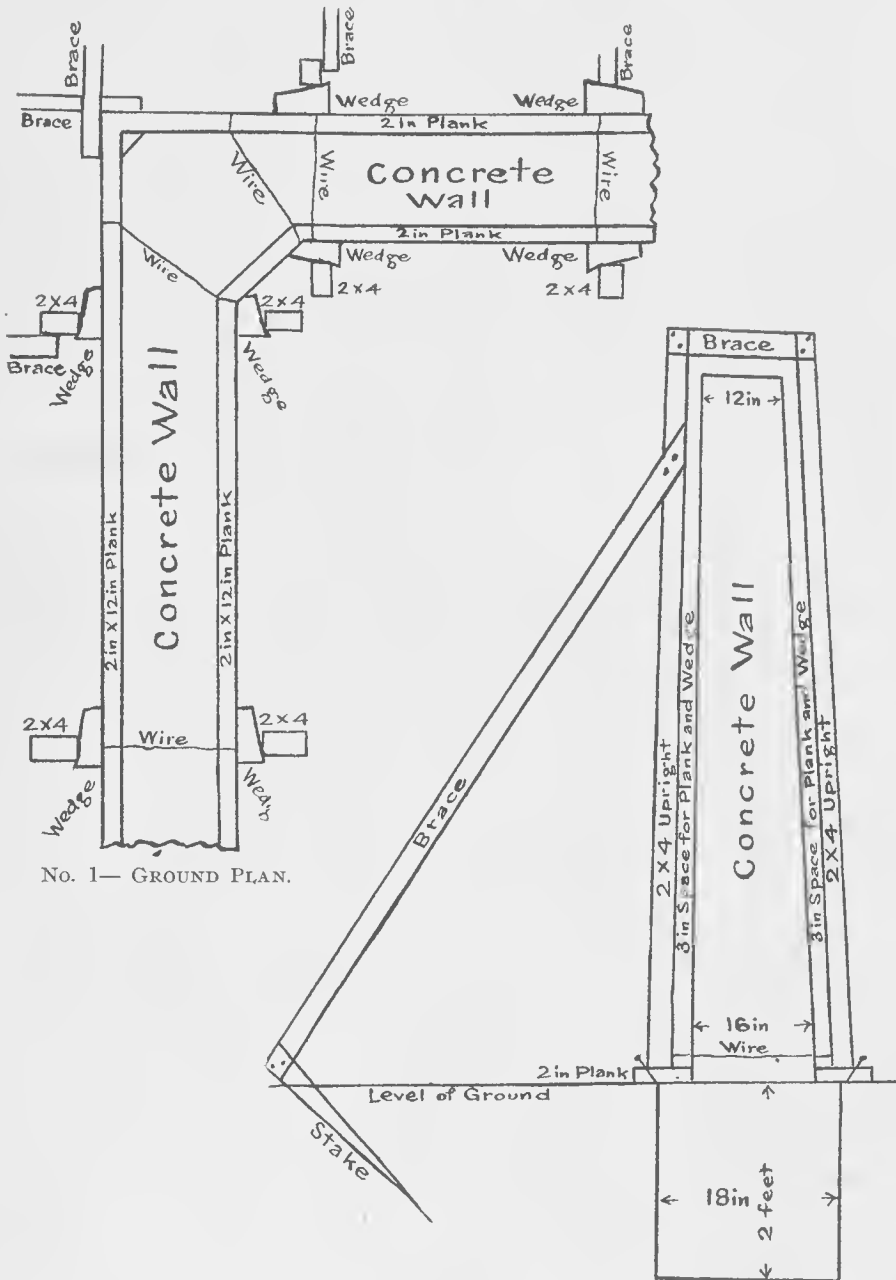
HOW TO BUILD CONCRETE WALLS.

In building walls, the ground should be excavated to a depth below frost, and at least six inches wider than the wall required above ground. Extend the same both inside and out, so that the wall sets in the middle of foundation when the trench is dug. Put in a layer of three or four inches of concrete, and then place in all the stone that can be used, and ram it down well, filling in around it with concrete, well rammed also. Repeat this till the foundation is completed to the height required. After the foundation is completed, nail two plank together lengthwise, and stand them on end for the corners of the building. Stand another on the inside angle diagonally across it, and tack a strip across to each at top to keep them from spreading. Brace them to a stake in the ground to keep them plumb, and wire them at the bottom. These wires go through the wall, and are built in, and may be cut off and left in the wall after the building is completed. After the corner planks are up, stand up uprights six or seven feet apart, according to the length of the plank you have to build by. The uprights should be opposite each other. Brace them at the top the same as the corner plank, and wire them at the bottom. If the wall is to be a foot thick, these uprights should be 18 inches apart, allowing three inches on each side of the wall for the 2-inch plank and inch wedge. After these uprights are all up, place the plank in, one on each side of the wall, with an inch wedge on bottom side of plank, and another on top edge of plank. The top wedge should have a nail tacked in it, and the nail laid over the plank to keep it from dropping down. Then take some strips an inch square, a foot long, and drive them between the plank to keep the latter tight to the wedges and uprights. When all is ready place in the concrete three or four inches thick; then add stone in the centre of the wall. This stone should be kept 1½ or 2 inches from plank. The concrete must be well rammed along the plank and between the stone. This should be repeated till the top of the plank is reached. If the concrete is not made too wet, this plank can be raised three and four times in one day. In raising this plank, take out the wedges and raise the plank, allowing the bottom edge to lap about 1½ inches down on the concrete.

Drive the wedges in again, and then spread sticks at top of plank. This plank can be held up until the wedges are put in by nailing a small piece of board on upright and letting the bottom edge of the plank rest on it. As a general thing, every farmer has these uprights in building his barns. They are not destroyed in any way, and after the wall is completed they can be used for other purposes. But where the walls are very high, say a two-storey building, bolts can be used in place of uprights. In using bolts, the corner plank is put up the same, and bolts are put in the bottom edge of plank, another at top. These bolts are let up in the edge of plank by sawing a notch in plank about 1½ inches, to let it lap on the concrete wall. In raising the plank, these bolts are easily drawn out and placed on top of the wall for the plank to rest on again. The wall can be kept plumb and straight by sighting from each corner plank.

TO BUILD COW STABLE FLOORS.

For floors there is nothing better than concrete; for, if properly put in, it lasts for all time, and in many cases can be put in fully as cheap as plank.



No. 2.—ELEVATION PLAN.

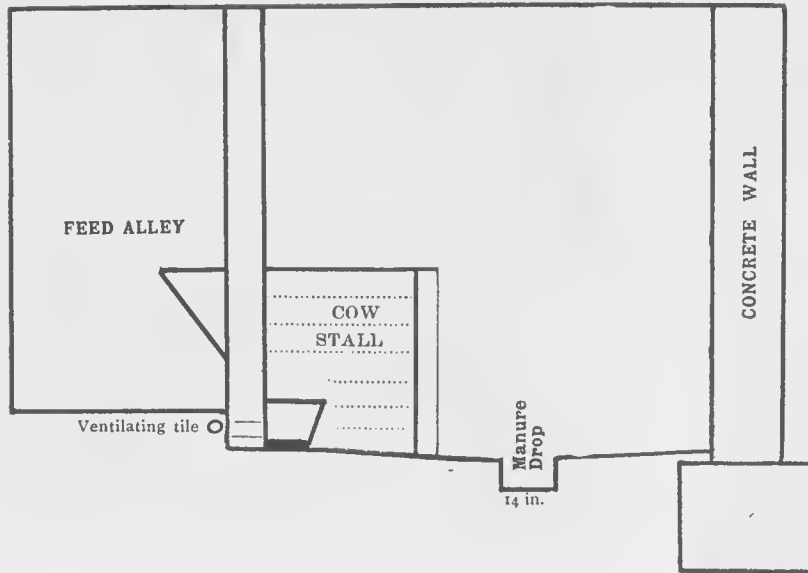
Plans for Walls—Barns and Silos.

brick or stone. Where materials have to be hauled the same distance the cement concrete building can be built much cheaper than the others. I will take up my method of mixing concrete first; then tell you how to build wall and lay floors.

DIRECTIONS FOR MAKING CONCRETE.

Make a platform of boards or plank about 12 or 14 feet square, with no sides to it. Then make a box without any bottom in it, just large enough to hold the quantity of cement that your sacks or barrels contain. If your cement is in jute bags, make the box so it just holds a sack of

form a conical shape, and, by rolling down the sides, will mix itself after leaving the shovel. Twice handling over dry is sufficient, in doing it this way; but if thrown against the side of the pile it should be handled over three or four times. After the concrete is thoroughly mixed dry, level it off about shovel deep, with a hole in the centre; pour in about two pails of water, and work the concrete towards the centre with the shovel, and then pile it up the same as it was done when mixing dry. When it is being handled over the last time, take a sprinkling can and sprinkle while the concrete is being piled up. The



Plan for Feed Alley and Cow Stable

As used by The Estate of John Battle, in making Cement Concrete with Thorold Cement.

In building a floor for a cow-stable, the bottom of the gutter should be put in first and extend 6 or 8 inches wider than the gutter would be when completed. Now take a 2x8 or 2x10, and stand it on edge next to the cow stalls; and a 2x4 or 2x6 next the passage behind the cows, and place a piece of scantling between them to keep them from pushing together. There should be a small bevelled strip tacked on top edge of plank next the concrete, so that when the plank is taken away it leaves a bevelled edge on top edge of concrete. There are some who object to such a deep gutter, but most farmers prefer it to a shallow one, as the cattle will not back up and

stand in it as they will in a shallow one, and therefore they keep cleaner. Should this gutter be too deep, it can easily be filled up with concrete to make it shallower; but if built shallow it cannot be remedied, unless all the concrete be taken up. And by making the passage behind the cattle 4 inches lower than where the cattle stand, it makes them look better, and the gutter is more easily cleaned out. After the form for the gutter is put in position, place a 2x4 up edgewise at manger, 2 inches higher than the plank at gutter. This gives a grade of 2 inches to stalls. Now make a batch of concrete about seven or eight to one, and spread it over 2 or 3 inches thick,

and ram stone in this till within 1½ inches of grade line. Then make a batch of concrete two to one, and ram this in on top of the stone till it reaches the top of floor. By using a straight edge on the 2x4 at manger and plank at gutter it can be got perfectly smooth and straight. After ramming the concrete in, float off with a wooden float. The passage behind the cattle should be 1 or 2 inches fall to gutter in order that all liquid may drain to gutter.

To Break Scrub Land.

There are a good few varieties of scrub, and possible ways of breaking it. The scrub implement invented at Hamiota has its admirers. Neil Nisbet gives in the Dauphin Press his views as follows:—

"My land is not of the scrubbiest, still, probably it is a fair average of the district. With fair diligence, three horses and a sixteen-inch plow, I can average from one to one and a quarter acres a day. We first of all cut down all the scrub and brush, gather it into heaps and burn it, leaving the surface quite clear; then plow as shallow as possible, cutting all the roots. If the plow won't cut them, the axe will, for this is the time to do it, at whatever sacrifice of time. After ten acres or so are plowed, pick off any roots that may be on top, and disc twice. The object of discing at this stage is to level and pack down the land so that the sod may rot more quickly. Backset between 12th of July (or thereabouts) and harvest time, harrow often enough to make good seed-bed and pick off all roots. Roughly speaking, I look upon June as the time to do the breaking. As I have already hinted, this plan is not put forward by an authority, but merely by an enquirer, in the hope of getting pointers that may be useful to himself and others."

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WORK DONE WITH THOROLD CEMENT SPEAKS FOR ITSELF.



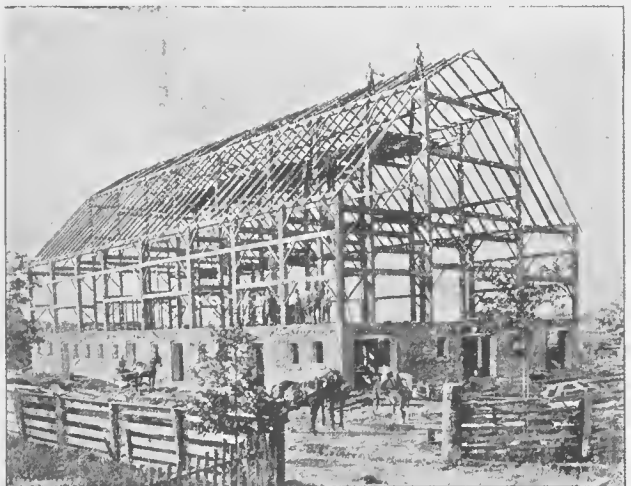
BARN OF ALLAN McMANE, ELMA TOWNSHIP, ONT.

Basement Walls 84x100, x 9 feet high. Built with Thorold Cement.



CONCRETE STORE OF R. ANDERSON, HARDWARE MERCHANT, ATWOOD, ONT.

Built from foundation to roof in 1898 with Thorold Cement.



BARN OF BESWETHERICK BROS., NEAR HAGERSVILLE, ONT.

Size 60x100 ft. Floors for horses and cattle were put in this barn with Thorold Cement.



BARN OF WM. PATTON, SOUTH CAYUGA, ONT.

Size of Basement Walls, 36x60x9 ft.

Built with Thorold Cement.



CONCRETE STORE OF W. F. FORREST, ATWOOD, ONT.

Size of Building 22x60, x29 ft high. Built from bottom foundation to roof with Thorold Cement.



CONCRETE RESIDENCE OF JOSEPH HARRIS, NEAR KERWOOD, ONT.

Built with Thorold Cement in 1896.

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ESTATE OF

JOHN BATTLE,
THOROLD, - - - ONTARIO.

The New Economic Movement in Ireland.

The Right Hon. Horace Plunkett, M.P., delivered an address recently before the Economic Society of Newcastle-on-Tyne on the new economic movement that is taking place in Ireland—a movement which is going to do more to satisfy the restlessness of the Irish people and make them happy and prosperous than any form of Home Rule ever could have done. There is little manufacturing in Ireland, so that the people are almost wholly dependent upon agriculture. But in this their products come into competition with supplies on the world's market, and as the people have been greatly depressed and their goods were of an inferior grade, they cut a sorry figure on that market. The promoters of the new movement realized that state aid could not be the salvation of the Irish people, but that the people must be roused and helped to help themselves. In fact, self-help was the order of the day.

* * *

It is now some nine years since the promoters of this new idea first began their work. Co-operation in England, Denmark and other places was studied and a scheme formulated for Irish farmers that would embrace every branch of farm work and which would be applicable in every part of Ireland. The first attempt was made in the dairying districts in the south of Ireland. It was at a time dairying was undergoing a change from home production to factory production, and the farmers were quick to see the advantages of the co-operative plan, but very distrustful of the promoters and of each other. Much opposition was met with, but the promoters, having unbounded faith in their countrymen, persevered until success crowned their efforts, knowing that success in this first application of organized self-help to a great national industry would open up prospects of amelioration in every department of Irish agricultural life.

* * *

The policy of self help has been extended to the poorest and most poverty-stricken districts on the west sea coast. It was thought that there would be difficulty in getting these ignorant people to co-operate—but it was not. By beginning with some simple scheme of improvement, they were gradually taught the principles of self-help, and to-day some of the best work is being done among these very people. The good work has been extended to every line of farm work. The people have been encouraged to purchase good stock of all kinds—co-operating in the purchase of sires for breeding purposes—and have been taught how to take care of them. It is a great educational scheme and is accomplishing wonderful things for the Irish farmer. In many places agricultural banks have been formed, and from these banks the members borrow money for the improvement of their farms or the purchase of good stock, upon approval by all the members or shareholders in the bank. These banks are doing a good work.

* * *

Of the success of this movement for the improvement of the Irish people, The Irish Homestead reports Mr. Plunkett as saying:—

"We have to-day, after nine years' work, in actual operation in Ireland 150 of these co-operative creameries, with a shareholding membership of 18,000. Their continuance and constant increase is sufficient proof of their commercial success. Of late years our programme has extended into other forms of agricultural co-operation. We have 79 co-operative agricultural societies, with a membership of 8,100. The object of these societies is to purchase everything that the farmer requires in agricultural production, such as seeds, manures,

implements, machinery, and so forth, at the very lowest price, and, what is more important, of the best quality. They have effected an enormous saving by joint purchase, and are now struggling with the more difficult problems of distributing their produce without the intervention of unnecessary middlemen. They are improving their breeds of live stock, and are developing a poultry and egg trade. Other societies are organizing home industries, in order to find profitable employment for the women and children. What we call the second stage of agricultural organization is reached by the federation of local societies into central bodies for larger trade purposes. Thus the Irish Co-Operative Agency undertakes the marketing of butter, poultry and eggs for its members which are mostly dairying societies, while the Agricultural Wholesale Society purchases farming requisites for its members, the co-operative agricultural societies. These two federations are constituted on the same lines as the English and Scottish Co-Operative Wholesale Societies. But I must not dwell upon details. It is enough to say that generally for all purposes connected with the farmer's industry, wherever combination would add to the volume, or decrease the cost, of production or distribution, the means are at hand to teach any body of farmers to organize themselves into a society. The process of organization consists of teaching men who do not understand these things, the constitution which must be adopted, and the procedure which must be followed in order that each may equitably participate in the risks, profits, and responsibilities of the undertaking, and that the interests of all concerned may be so harmonized as to secure permanence and business efficiency. Up to the present time 283 societies, scattered throughout every county in Ireland, with a membership of 30,600 farmers and laborers, mostly heads of families, have been registered, while some twenty more are in course of formation."

—Manager Heubach perhaps thinks himself no slouch in the contriving of attractions at farmers' fairs. But he has never been at Roland. One of the star events in a recent gathering at that progressive burg was a ladies' nail driving contest. The local reporter does not specify how many thumb nails were smashed in that exciting contest or how many dozen wire nails were driven, but there were about half a dozen prizes given, four married and two single ladies being the winners.

WATCH

the dates, July 18, 19, 20, 21, and come to Western Manitoba's Big Fair at Brandon. We are always talking watch, as watch repairing is our business. There is no sleeping—no resting on the oars with us. We want your trade, and are willing to work hard for it. If you are at the Big Fair, we invite you to visit our store, and we will show you the largest and most complete stock of Watches and Jewellery in the West. If your watch is out of order, drop us a card, and we will send you a mailing box. A guarantee goes with our work that guarantees.

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Makes Delicious PANCAKES.

In 8-lb. Packages.

HIGHLY RECOMMENDED.





Tree Planting.

By T. R. Donnelly, Pheasant Forks, Assa.

The subject of tree-planting and the benefits accruing therefrom, is one to which every farmer living on the open prairie should give some attention. In the treeless portions of this country, where in the spring months drying winds prevail, sweeping over large areas, abstracting the moisture from the soil, and not only retarding growing vegetation, but frequently totally destroying it, the need of tree-planting should be apparent to all. If every farmer would plant a belt of trees on his farm he would be providing a shelter for his stock, a protection for his growing crops and a barrier to intercept either the hot winds of spring or the howling blizzards of the winter. A plantation of trees will be not only useful, but will add greatly to the appearance of the farm as well. Belts of trees should also be planted on three sides of the farm buildings, north, west and east, leaving them open to the south. As to the kinds of trees to plant, elm, ashleaved maple, green ash, poplar and balm of Gilead of the native kinds, make good wind breaks. Of the above kinds, the elm ranks first, as it grows larger and lives longer than any of the other kinds, but the ashleaved maple grows faster. It would be a good plan to plant in rows $2\frac{1}{2}$ feet apart in the rows. The rows being 4 feet apart. Set out maple and elm alternately in the row, and when the maples grow too large they could be cut out and the elms allowed to fill up the spaces left vacant. Three rows would make a good windbreak.

The seeds of the ash and maple could be gathered when ripe in the fall, mixed with sand, kept in a cellar until spring, and then sown in beds. Transplant when they are two years old into a permanent location. The elms should be sown as soon as the seed ripens, which is in June. The ground should be summerfallowed before planting and after the trees are set out they ought to be cultivated for the first few years to keep down weeds, encourage growth and conserve the water in the soil. Poplars and balm of Gilead are easy to procure and make a very effective windbreak. The balm of Gilead may be grown by plowing out a trench, going over it with a plow until deep enough, laying green poles along in the bottom of the trench made by the plow, and drawing the earth over them. If the season is dry it would be well to put on a heavy mulch of straw and manure.

For making hedges around gardens to hold the snow, there are several varieties of shrubs useful, as artemisia, bush honeysuckle, Siberian pea trees and lilacs. The artemisia may be grown from cuttings, planted about two feet apart where you want the hedge. It will grow tall and thick in a short time. Bush honeysuckles and lilacs may be grown from seeds or layers, and the Siberian pea tree does best grown from seeds. They are easily transplanted and make a very pretty hedge when covered with their yellow pea shaped blossoms. Nearly every one likes to see trees growing; they adorn the landscape and give a homelike appearance to a place, and certainly a farm that has been planted with trees ought to be worth more than a place that is destitute of them.

Trees as Fence Posts.

In many parts of Western Canada the problem of the fence post supply has always been, is now, and apparently ever will be one of more or less interest to the farmer and rancher. Indeed it is becoming in many places a rather serious one, and the question of where the future supply is to come from is a rather problematical one. Side by side with this growing need we find, however, a growing interest (somewhat lethargic, of course, in a good many places) in the matter of tree planting and cultivation, and a good many of the thoughtful ones have planted—and more are planting—small groves of trees. So far, however, as our observation goes, there have been very few, if any, who have laid out trees in such a way as to use them as fence posts. The idea is not at all a new one, as it has been followed with considerable satisfaction by a number of the farmers in Eastern Canada and elsewhere. Why should we not adopt it on our prairie farms? To plant a whole mile with trees a rod apart would require but 320 trees. These, of course, would need some sort of cultivation and protection from stock for the first few years, but in five or six years there would be a row of living, growing, tough and secure fence posts ready to receive the wires. These, instead of falling into decay in a few years, will go right along getting stouter and stronger, and will be there to stay—at least for a good long time. All the time, too, they are increasing the value of the place. No need, then, of putting out a new lot of posts every few years. Of course, with a fence of this sort it is advisable to go along every year or two and draw the staples a little, as there is a tendency for the tree to overlap and imbed the wires. Any good, hardy tree may be used for the purpose. That there will be some trouble in connection with planting, cultivation and care for the first few years nobody will begin to deny, but will not the satisfaction—and pecuniary advantage, too,—which such a row of trees will represent in later years much more than compensate for any immediate outlay?

Native Plums.

At a recent meeting of the Brandon Horticultural Society Mr. Hay read a short paper on plums, as follows:—

My own experience is very limited and yet I have spent many dollars on imported goods, and failed; and some few years ago I turned my attention to our native trees, with gratifying results. I took a number from the woods and planted, and from these I am now going to speak. If, when going to the bush for these trees, you will take a few minutes to notice the bark and growth, you will hardly find two alike in appearance.

Now, in choosing trees, do not take trees larger in diameter than one inch. I prefer three-quarters inch; or say the size of an ordinary man's thumb. In taking the trees up, have an old sack with you to wrap around the balls of roots and earth. The roots being of a sappy nature, the wind and sun easily injure them. Take as much earth as you conveniently can when moving them.

I prefer spring moving; say, during the last half of May.

Select trees with a light colored bark; i.e., very much in color like the wild red cherry—the fruits of these are very much more palatable—have a better appearance, yellow tinged with bright red, much less acid, and do not blossom quite so soon as many of the other kinds while the fruit is among the largest of our wild plums. Trees with a dark bark are in general small, the fruit small, much more acid,

and quite red when ripe, while the pits in this class are larger than in the one I recommend.

I prefer planting so that they get protection from the west and south, as frost and wind seem to be much more severe from these quarters than from the north and east. I planted mine about sixteen feet apart and four to six inches deeper than when growing wild, taking care that the earth was tightly pressed in and around the bottom of the hole to the roots.

If this plan is followed, scarcely one tree will fail. One good watering should be sufficient in ordinary seasons; a little horse manure around the tree is very beneficial.

Such trees will fruit about three years after planting. When first planted prune back to a shapely tree; do not let the wood crowd, as they seem to do better with rather open tops, so that the air circulates freely.

The fruit from these trees may be used for preserving purposes long before they are ripe, and are then very similar to the greengage in flavor.

Note.—If trees in the bush are watched when the fruit is ripening and marked for lifting as the buds begin to open next spring, there can be no doubt as to the nature and quality of what are planted. But for those who have not the opportunity to see the fruit the hints thrown out here as to selecting by means of the bark are well worthy of notice.

The Farm Lawn.

It is frequently impossible for city people to enjoy the luxury of a fine large lawn, and for that reason wealthy people often move out to the suburbs, where they can enjoy this luxury. Land is plentiful in the country and a nice large lawn should be laid out around every farm home. It can with labor and little expense be made one of the most attractive features on the farm. Break up the old prairie sod and work up a fine level seed bed in any design you wish, then seed down with blue grass. Have sufficient room for a nice croquet lawn, or better still, a nice smooth lawn tennis court, for there is no reason why people on the farm should not play lawn tennis as well as their city cousins. Make the home surroundings attractive.

The horticulturist of the Virginia Experiment Station, Wm. B. Alwood, states that, from his experience, it appears to be a simple matter for any intelligent farmer to grow forest tree seedlings, either for decorative planting or for wind-breaks and forest belts. All such seeds as silver maple and like early ripening species it is necessary to sow as soon as ripe. They can be sown in the same manner and will grow as readily as peas. All late ripening species should be sown in the fall.

In a bulletin issued by the U. S. Agricultural Department, entitled "Principal Poisonous Plants," the moccasin flower, or wild lady slipper, as it is sometimes called, is shown to secrete a poisonous oil closely allied to that of poison ivy, and having an effect on the skin almost identical with that of ivy. It does not appear, however, that it is as powerful a poison, for not all individuals susceptible to the ivy are harmed in handling the moccasin flower. Doubtless every spring there are cases of supposed ivy poison that are really caused by handling and picking the beautiful blossoms of the moccasin. Poisoning from this source is said not to yield to the same remedies that are effective in ivy poisoning. Anyone easily affected by ivy should handle the moccasin cautiously until satisfied as to their immunity.

Fruit Trees at Steinbach.

The Mennonites are noted for their gardens and the nice collection of trees they generally have around the house. Their villages always have trees, and it would seem as though home was not a home to them without trees. It would add greatly to the appearance and homelikeness of many a prairie home if there were trees around it. The men have their work, which takes them afield or off to town or some other place. They see places and people and have considerable variety in their life; but the farmer's wife is more or less tied to the house, and life is therefore apt to be somewhat monotonous. For this reason, as well as beautifying the home, trees should be planted around the house, for they are companionable.

At any rate, trees are characteristic of a Mennonite home, and therefore, when in Steinbach, we gladly accepted the privilege of a turn through the well-kept garden of Klaus Reimer, who takes great pride in it. He had a fine garden in Russia, and as soon as he settled down here set out to have as good a one here. He studied the wild fruits and soon introduced the best of them into his garden. His method of "taming" wild fruit is to mark the south side of the tree as it grows wild; then, when planting it, he turns this side to the north. This change, he says, makes the tree "sick," and very often they die, but if they live the fruit will be tame; or, in other words, he checks excessive growth by so doing. If he wants a tree to grow rapidly and do well, such as trees for shade, he is always careful to plant it as it grew. At any rate, by his plan of "taming" wild trees, together with good cultivation, he has succeeded in growing quite a number of fine plum trees, some of them now twenty years old. The fruit is as large as a walnut and of fine flavor.

Crab apples have done well with him, and one tree gave him three bushels last season. He found in the woods seven varieties of wild cherries, and he has had good success in "taming" three of them. Currants and gooseberries are also successfully grown by him, and last season out of his little garden he sold \$75 worth of plums, crab apples, cherries, gooseberries, etc., to the English-speaking people of the Clear Springs district.

At first he tried Russian methods of pruning his trees, but soon found that they winter-killed when too closely pruned. Now he does but little pruning. He directs the growth some, of course, but allows many "water shoots" or suckers to grow in order to take up the excessive strength of the tree, and in this way he gets his wood ripened in good time in the fall and is not troubled with winter-killing. If he cuts off these "water shoots," the excessive strength of the tree causes it to grow too long in the fall, the result being frozen wood. He has always found it advisable to cut off the tap root when transplanting. He has tried quite a number of tame apple trees, but has not succeeded with any of them as yet. He is a great lover of flowers, and has them in profusion. A small greenhouse and hot-bed supply many early plants and delicacies.

Mr. Farquhar and several other settlers near Franklin had plum trees planted last year that are covered with blossoms, promising fruit this season.

When passing through Winnipeg lately Professor Fletcher discussed the good spraying would do to the city trees as an antidote to insect pests. Perhaps he is not aware how much the English sparrow and other small birds are doing in the same direction. It can also be seen that judicious thinning out of the overcrowded branches is doing indirectly along the same line. Vermin always flourish on unhealthy trees.

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Mechanics of the Doubletree.

Many a teamster is bothered with one horse always hanging back, or what amounts to the same thing, a keen horse always pulling ahead. The idea has always been held that a horse that hangs back gets the heavy end of the load. This is so generally, but there is another kind of doubletree in which the keen horse gets the heavy end of the load. The following extracts from an article by W. W. Griffith, of the University of Missouri, in the Rural World, will make this plain and also show how a calculation can be made to ascertain how much one horse pulls more than another. It will be seen then how important it is to have each horse doing his fair share of the work.

Owing to the usual construction of the doubletree it is possible for one of three things to take place: First, it is possible for one horse, for all angles of the doubletree, to pull exactly as much as the other horse. Second, it may be possible for the hindmost horse to pull more than the horse which is a little in advance. Third, it may be possible for the horse that is behind to pull less than the other horse.

First—Suppose the doubletree is made from a thick board having the holes for the clevis pins in a straight line as in Fig. 1. Let AC be a doubletree attached to a wagon, and let the horses be pulling from A and C respectively in the direction of the arrows. The horses then are pulling against the load B. The position AC represents the doubletree at right angles to the tongue. The horses in this position

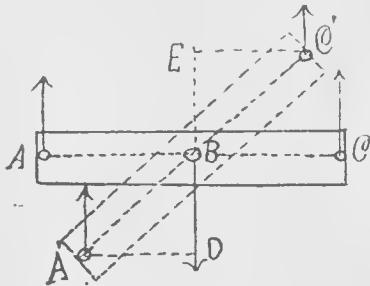


Fig. 1

are pulling even. Now, when two forces as A and C are acting about a centre at B, the two forces will be equal as long as their respective lever arms AB and CB are equal. If the lever arms are unequal, the horse having the longer arm will pull less than the one having the shorter arm. When the doubletree is at right angles to the tongue the lever arm of one horse is equal to that of the other; hence, they pull equal loads. Suppose horse C pulls ahead. The double tree will then have a position as A' C'. The lever arm of the hindmost horse will be A' D, and that of the other horse will be C, E. But the two arms are still equal; hence the horses for this position also pull equal loads. If the doubletree be made to rotate either more or less, the respective arms will be found to be equal to each other in every case. Hence for a doubletree when the holes A, B and C are in a straight line, as in Fig. 1, it is impossible for one horse to pull more than the other.

Second—For the sake of strength, doubletrees are seldom made with the holes in a straight line, but are made, when constructed entirely of wood, as represented by Fig. 2. Note that the axis of rotation, the doubletree pin at B, is above the line joining A and C, the positions of the holes for the singletrees.

When the doubletree is at right angles to the tongue, that is when both horses are pulling even, the lever arms of each horse, AB and CB respectively are of equal length; hence, one horse pulls as much as the other.

When the horse at C is a little in advance of the other one, the doubletree will be in same position as A' C'. In this posi-

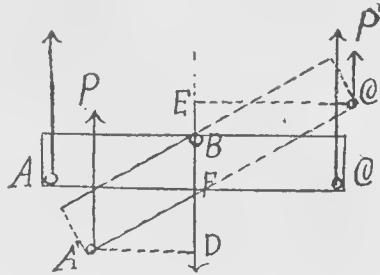


Fig. 2.

tion the lever arm of the hindmost horse will be A' D, while that of the other will be C' E.

The amount each horse will pull in any case will vary inversely as the length of the arm. If P and P' represent the pull of the horse that is behind and ahead respectively and A and A' their respective arms, then the proportion, $P : P' :: A' : A$, will show the relative pull of each horse. For example, suppose the pull of the horse that is ahead equals 1,000 lbs. By measurement in the figure the arm A of the hindmost horse equals A'D equals 8.3 units in length. The other arm A' equals C', E equals 12.5 units. By substituting these values in proportion above, P the pull of the hindmost horse may easily be found. Thus, $P : 1,000 :: 12.5 : 8.3$, from which P equals 1,506 lbs. It is thus seen that the hindmost horse will pull 506 lbs. more than the other one.

Relative results by proportion can be obtained for any doubletree by drawing it to scale for any desired angle, then measure the arm and solve as above. These results can easily be verified for any angle of rotation by means of pulling with two 24-lb. spring balances attached at A and C, the doubletree being allowed to rotate freely about a nail through B.

Third—For the sake of convenience the holes in the doubletree are usually replaced by fixed and rigid clevises mortised into the wood at A and C for the attachment of the singletrees and at B for the attachment of the load. See Fig. 3. Note that the doubletree rotates about B, which is below the line connecting A and C. For the sake of illustration of the parts these conditions may best be represented by Fig. 4. A and C represent the points where the singletrees are attached and B the point of application of the load. Note that B is below the line connecting A and C while it is above the line in Fig. 2. Also, the long arm A'D, Fig. 4 belongs to the hindmost horse, which is the reverse of the condition of Fig. 2. Hence, in cases represented by Fig. 4 the hindmost horse will pull 664 lbs.,

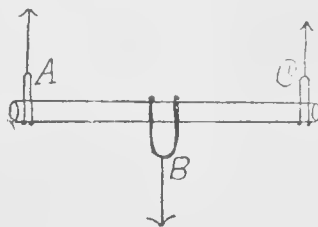


Fig. 3.

if the other horse pulls 1,000 lbs. for $P : P' :: A' : A$ or $P : 1,000 :: 8.3 : 12.5$ or P equals 664 lbs.

In any case the pull of one horse multiplied by his lever arm is equal to the pull of the other horse multiplied by his lever arm. This is shown by the above proportion.

The doubletrees that are on the market and in general use correspond to Fig. 3, which is represented in Fig. 4. I measured

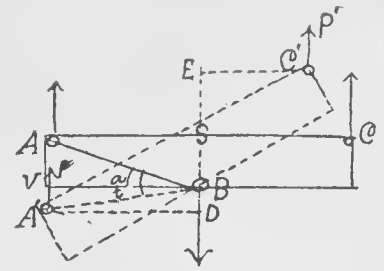


Fig. 4.

one which was 36 in. long and the axis B was 6 in. below the line AC. Fig. 4 represents it drawn to scale.

I have observed that if the doubletree is turned through the small angle of five degrees that the hindmost horse pulls 58 lbs. less than the other one, or about 6 per cent. less. In practice, it is a very usual occurrence for one horse to keep sufficiently in advance of the other one, even for hours at a time, as to cause an angle of 20 degs., making a difference of about 22 per cent. in the work done by each horse. This is particularly true in plowing or in harrowing.

The doubletree from which the above results are derived is in every-day use. Many are so constructed as to give one horse or the other even more advantage than the one above.

Many evils suggest themselves by the use of doubletrees like Figs. 2 or 4. In Fig. 2 the hindmost horse is likely to become winded. If he is naturally slow he will be imposed upon. In Fig. 4 the nervous, fretful horse will likely be in advance, and consequently will pull most of the load. The use of Figs. 2, 3 or 4 makes it very hard to train a team to steady, even pulling, since the least advance of one horse tends to change the pull of each, making one greater and the other less.

If the doubletree used is like Fig. 2 the weaker horse should be kept a little ahead in a tight pull, but in Fig. 3 or 4 he should be held a little behind.

Doubletrees like Figs. 2, 3 or 4 should never be used under any condition whatsoever.

In any case the driver should be acquainted with the above principles, and should not only know his team but should know his doubletree.

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1899

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Territorial Agricultural Societies.

Short sketches of some of the Agricultural Societies in the Territories are continued in this issue:—

Fairmede.

This society was formed seven years ago at Fairmede, 16 miles south of the town of Wapella, and is in the midst of a prosperous farming country. All its exhibitions have been very successful and strangers visiting the show have been astonished at the fine cattle, horses, vegetables, etc., shown. There is a large frame hall on the society's grounds, well finished inside and out, a frame stable with shingle roof, and a dining hall where dinner is served on exhibition days. Last fall the prize list amounted to about \$400,



Henry R. Dring,

Pres. Fairmede Agricultural Society.

supplemented by \$220 in special prizes, thus making a prize list of about \$620. This year the society starts with about \$100 of a balance to the good from last year. They are clear of all debt and have been so for some three or four years. Great credit is due to the late officers of this society for their able management of its affairs, as it shows that they have had its interest at heart. Especially deserving of mention is the indefatigable and worthy secretary, John Kidd, Fairmede, who has held the office since the society started. This year the society hope to hold their exhibition in the fall, and that it will be as successful as it has been in former years. The president elected this year is Henry R. Dring, Earlswood.

Carrot River.

The Carrot River District Agricultural Society was first formed in March, 1886, through the efforts of Chas. Robertson, he being unanimously appointed the first president. A constitution was drawn up and strictly adhered to until August, 1889, when it was incorporated and governed by the North-west Ordinance.



Chas. S. Lowrie,

Pres. Carrot River Ag. Soc., Kinistino, Sask.

W. F. Meyers, the present M.L.A., being the first president under the new ordinance. An annual exhibition has been held every fall since 1886 and each year has seen some new improvement in the prize list. The society has two acres of land, which was very generously given to them by Jas. Robertson. This has been enclosed with a good fence, and they have built a substantial hall, 48 x 18 ft. In connection with this society there is a very good library, which has been well appreciated by the members. The society has also imported two pure bred Shorthorn bulls of the best blood in Manitoba. This has helped to improve the name of the cattle for which this district is famous. The president of the society is C. S. Lowrie, Kinistino, who has ably filled the position for a number of years, being a man that takes a great interest in the welfare of the settlement. The efficient secretary is J. W. Roscoe, also of Kinistino.

South Eastern Assiniboia.

This society, as the name implies, embraced at its inception



J. P. Carnduff.

Pres. S.E. Assa. Agricultural Society.

the whole of S.E. Assiniboia, or what is now the electoral district of Souris. It was organized in May, 1887, and the first exhibition was held at Alameda on Oct. 6th of the same year, with C. Troyer as president, J. J. Heaslip as secretary, W. Walsh as treasurer, and a membership of 95. It will thus be seen that the society is in its 13th year of existence and notwithstanding the fact that Gainsborough on the east, and Oxbow and Alameda on the west, have seceded from it, the parent society more than holds its own. The annual exhibitions are held at Carnduff each year and are well attended, the exhibits always being of a high order. The society has been the means of accomplishing much good in the district. It has encouraged the importation and raising of pure bred stock, has promoted immigration, has, as an incorporated body, laid the grievances of the people before both the Territorial and Federal Governments, and has generally done what agricultural societies are supposed to do, encourage better methods in farming. J. P. Carnduff, after whom the village of Carnduff is named, is president for the third year in succession, and John Young, of Carievale, is secretary-treasurer—a position he has held for nine years out of the thirteen that the society has been in existence. The society is in a good position financially and 1899 promises to be a banner year for them so far as membership is concerned.

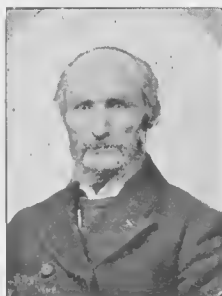


John Young,

Sec. Treas. S. E. Assa. Ag. Society, Carievale.

Alameda.

The Alameda Agricultural Society was formed in March, 1890, at the old town of Alameda, and the first exhibition was held there on the 7th of October. The second exhibition was held a year later at the same place. These two exhibitions were most successful ones, both in point of the quantity of the exhibits and of their quality as well. It is very gratifying indeed to know that in a country 90 miles remote from any railway point, as they were then, a society could hold a successful show and take in receipts to the amount of \$599.83, as they did in 1890. This gave the directors great encouragement and stimulated them to greater exertion, and in 1891 they were enabled to offer

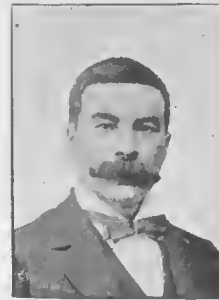


Solomon Miller,

Pres. Alameda Agricultural Society.

a much better prize list and the receipts that year were \$828.87. This gave them

a good financial standing and is a good showing for a town so far away from railroad facilities. In



Jas. P. Maitland,

Sec. Treas. Alameda Ag. Society.

The president is Solomon Miller and the worthy secretary-treasurer, Jas. P. Maitland.

South Edmonton.

This society is one of recent date, having been organized in 1894, through the efforts of R. McKernan, who was elected the first president, and so able and efficient have been his services that he has been re-appointed from year to year and held the position for five years. Two years ago, so highly valued were his services and the great interest taken in the welfare of the society, that the members made him a present of a silver tankard in recognition of his services. Although a comparatively young society, they have been active and progressive, characteristic of the splendid district they live in. The officers have rustled for members and now have 214 on the roll. They have secured 20 acres adjoining the town site and have on it a good half mile track and an agricultural hall. The grounds are well improved and fenced with a six foot close board fence. What is more important, it is all paid for, and thus they have no debt hanging like a millstone round their neck. This year the officers have decided to hold a summer instead of a fall fair, as in the past. The officers are: President, James McKernan; 1st Vice, A. McLean; 2nd Vice, J. Tip-ton; secretary-treasurer, H. Wilson, and auditor, A. C. Rutherford. They are all working for the best interests of the society and we feel sure that their summer show will be successful.



R. McKernan,

1st Pres. and Founder South Edmonton Ag. Society.



J. McKernan,

Pres. South Edmonton Ag. Society.



H. Wilson,

Sec. South Edmonton Ag. Society.

interests of the society and we feel sure that their summer show will be successful.



The Farmer's Wife a Business Partner.

By I. G. M.

The following article by I. G. M. is one that should make interesting reading for our many readers. Do you agree with her ideas? Whether you agree or disagree with her views, we want to hear from you about it. We hope to have the privilege of airing other questions from a woman's point of view in these columns. Let us have your ideas about some of them.

It is a pretty generally recognized fact that a woman should have an allowance. A definitely stated sum that she can depend upon, and have it distinctly understood just what that sum is expected to cover in the way of housekeeping, clothes, etc.

The women who are in the enviable position of having an allowance, however, are in the minority, and right here I think lies one of the reasons that dairying on a business basis is retarded. As long as the butter-making on the farm is a side issue to the farmer—but the sole means of obtaining much-needed pocket money to the farmer's wife—just so long is the farmer's wife likely to oppose any change in her methods of working.

"Just think," says the advocate of improved dairying, "how much trouble you will be saved by sending the milk to the creamery, and how much extra profit may be reaped in a year." "All right," says the farmer's wife, "but how much of it will I get?" Now, I make the butter and trade at the store, and John, he don't bother about it, but if he takes the milk to the creamery, he'll get the money, and it won't be mine like it is when I make the butter at home."

Now, if things were once placed on a business basis on the farm and a certain share of the profits belonged to the wife by right and not by favor, as is too often the case, more wives would be interested in running the farm along business lines. This is true not only of the wives, but the sons and daughters also. When the appearance of a separator or a Babcock milk tester on the farm means to the farmer's wife only an increased outlay on the husband's part, and consequently lessens her chances of obtaining a little ready money from him, she is not likely to advise him to invest.

If, on the other hand, the wife was a business partner in a true sense of the word and received a certain portion of the income from every source—cows, pigs, poultry, vegetables, grain, etc., her interest in everything in connection with the farm would be increased. Her woman's wit would stop many a small leak that now she does not feel it worth while bothering about, and her mind would be on the alert to receive fresh ideas as to the newest and most economical methods of running a farm.

The farmer may protest against giving his wife an allowance on the ground of having no fixed income. This objection may be easily met and overcome. While no farmer can reckon definitely on his income from grain alone he should (with things on a business footing) be able to form a fairly good estimate of the income he should

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be able to derive from his other farm products. Let him now promise his wife a certain portion of his income from these sources—and a certain amount from the grain when sold, and I will guarantee him a very noticeable increase both in income and solid comfort in his home life. The farmer's wife then being assured of her allowance, would no longer object to the butter being made at the creamery, and could afford to devote more time to the poultry, etc.

It would then be to her interest to see to the state of the milk cans—the regular milking of the cows and the thousand and one little details that fall to the lot of the woman on the farm, but are oftentimes slurred over or are entirely forgotten.

Good and Bad Management of the Home.

By Marguarita, Stonewall, Man.

You will sometimes see a great difference in the homes of two farmers' wives, though each has about the same amount of work to do. The one works systematically, while the other works in a slipshod, slovenly manner, and always looking more or less untidy. I know it is impossible for a farmer's wife to always look perfectly neat, but if she will use a little forethought she need not look the fright you sometimes see. No woman need go about her work in a ragged dress when prints and gingham are so cheap. Always wear a large, coarse apron about your work. It is a relief after a hard morning's work to change into another dress in the afternoon. If you are a struggling young mother with small children to care for, do not dress them in light clothes with frills and trimmings, which soil and tear so readily. It is much wiser to dress them in neat dark dresses that will not too readily proclaim their lapse from perfect cleanliness. Economy of time and strength is economy of money. If you have to do your own dusting, put away all unnecessary ornaments and dust-traps about the house that call for a constant expenditure of time and care. It is always good management to take care of our health, to be properly fed and comfortably clad. By a knowledge of cooking you can prevent waste of food and can extract the greatest amount of sustenance from meat, vegetables and fruit. It is bad management to spend money for useless ornaments instead of some labor saving article, such as a washing machine. You should always have your floor painted if at all possible, for it saves so much scrubbing. It is a good plan in the winter to bake a large batch of bread, as it is so much trouble to keep the yeast warm in the cold weather. You can put some of the loaves in the milk-house to freeze, when needed it can be put in the cellar to thaw out; you can do the same with pies or cakes. By good management you save money and promote the health of your family.

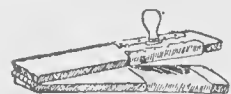
Some Men Folk.

By Orphan, Killarney, Man.

I have been thinking so often of Squaw's letter that I thought I would write a few lines; perhaps you can find room for them. I wonder if Squaw is really a housekeeper or not, and if she practices what she preaches. The idea of one pair of hands doing all the work she maps out, she really cannot mean it. In my experience the majority of farmers' wives have a family of small children to look after, besides doing a great many of the outside chores, such as milking, feeding calves, tending poultry, and the garden. I think if she used canned goods all the time and expected to make both ends meet, she would need more of an income than what can be obtained off a farm. Oh, dear! That cup of oil, it makes one smile. I have been in Manitoba for eighteen years, and that is something I never saw yet; although I have been in a great many pantries. Squaw's men-folk must be more obliging than the majority of men. Perhaps they do not mind driving ten or fifteen miles, with the thermometer ranging from forty to forty-five below zero, just to get a little coal oil. I heard a woman ask her husband one Saturday morning to take her to the village as she was needing some supplies for the house. He calmly told her that he had paid three hundred dollars for his team, and he got her by merely asking for her, so if she wanted to go out in that drizzling rain she could walk, for he would not take his team out. Well, she walked, and he had the cheek to ask her to bring him a plug of tobacco. I am glad to say he did not get it, but he didn't forget to tell her how obliging she was.

For Scouring Knives.

Some housekeepers have more or less trouble keeping their knives and forks bright. If the knives are made of steel they require scouring after every meal to keep them bright. This means a lot of work and the scouring brick is not always handy. The accompanying cut of a simple scourer, taken from an exchange, will be found very handy and save a lot of time. It consists of a couple of boards hinged together as seen in the illustration.



Some pieces of old leather are stretched over the front part of the device, and a little emery may be sprinkled on it, or pulverized brick will do. Shut the upper and lower pieces together and work the knives back and forth a few times.

"Ma, you send me to bed when I am not sleepy, and make me get up when I am sleepy."

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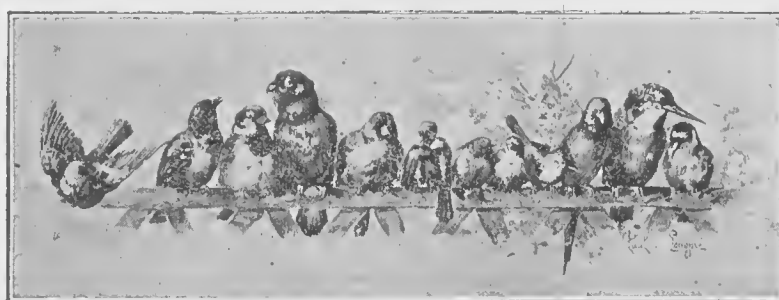
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Great Men's Mothers.

At a recent meeting in Winnipeg, Mrs. Wilbur Crafts gave the following definitions of mother, collected from the writings of eminent men:—

A mother is a mother still the holiest thing alive.—Samuel Taylor Coleridge.

A mother's love is the best of all.—West Africa and Hindoo.

A mother's love the best love, God's love the highest love.—German.

A mother is the divinity of infancy.—English.

A child must ask its mother whether it may be a wise man or a fool.—W. L. Weems.

A mother's arms are made of tenderness, and children sleep soundly in them.—Victor Hugo.

A mother's love will draw up from the depths of the sea.—Russian.

A mother's prayers, silent and gentle, can never miss the road to the throne of all bounty.—Henry Ward Beecher.

A mother's tenderness and caresses are the milk of the heart.—Eugenie de Guerin.

A simple kiss from my mother made me a painter.—Benjamin West.

A wife; a mother; two magical words comprising the sweetest source of man's felicity.—L. Aimee Martin.

A witty mother—witless else her son.—"Taming of the Shrew."

All I am my mother made me.—John Quincy Adams.

All I am or can be I owe to my angel mother.—Abraham Lincoln.

All that is purest and best in man is but the echo of a mother's benediction.—Frederick W. Morton.

Blessed is the child who is brought up at the mother's knee, which is God's altar.—Ladies' Home Journal.

Children are what their mothers are.—Walter Savage Landor.

Compared with a mother's love the earth is like a bamboo leaf; a chavala like a needle's eye. Mount Meon an ant hill; the ocean a water bowl.—Burmese.

Forget not the mother that fondled you at the breast.—Cingalese.

God could not be everywhere, therefore he made mothers.—Lew Wallace.

How to Make Poultices.

For the benefit of the inexperienced we give a few formulas for making simple poultices:

Bread and Water.—Remove crust from slices of cured bread, pour on boiling water, set by the fire a few moments, drain off the water, press the bread as dry as possible with the hand, loosen it up, put into a cheese cloth, or other thin bag, and apply hot.

Flaxseed.—Pour boiling water into a heated bowl, sprinkle in the flaxseed, stirring vigorously until the whole is a smooth paste. Put in a cheesecloth bag and apply as hot as can be borne. If used to hasten suppuration, as it is most commonly, this poultice should be applied fresh as fast as it cools. If this irritates the skin, first grease the latter with vaseline, then apply poultice.

Bread and Milk.—Stir bread crumbs into boiling milk until the mixture is like mush. Apply same as above.

Bran.—Put a pint of bran on the stove in a pan. Pour on enough hot water to make it simply moist. Half fill a heated bag, tie it up and apply as hot as can be borne. Renew often. It is convenient when large poultices are needed.

Indian Meal.—Spread common Indian meal mush on a cloth and apply at once.

Turnip or Carrot.—Boil the vegetable until it is soft, mash, loosen up and follow directions for making flaxseed poultice.

Charcoal.—Sprinkle on the surface of

a bread poultice a thin layer of finely powdered charcoal. Excellent for foul smelling sores.

Slippery Elm.—Pour boiling water on powdered slippery elm bark until the consistency of mush is secured. Put in a thin bag and apply.

Egg and Alum.—Mix well the whites of two eggs and a teaspoonful of pulverized alum, spread on a piece of cloth and apply to the part affected.

Mustard.—Add boiling water to ground mustard and wheat flour until a thick paste is formed. Let the proportion be one part of mustard to three of flour. Spread on a stout cloth and baste securely over it a layer of cheese cloth. Apply warm. A slow, gentle but prolonged burning usually produces the greatest number of good results.

Yeast.—For gangrenous sores apply a poultice made of a pound of flour and pint of yeast.

More and more are compresses and fomentations coming to take the place of poultices. By these we mean a cloth folded several times, dipped into water, wrung lightly and applied to the affected part.

To reduce inflammation use the cold compress—if you can stand it. Change every five minutes or oftener.

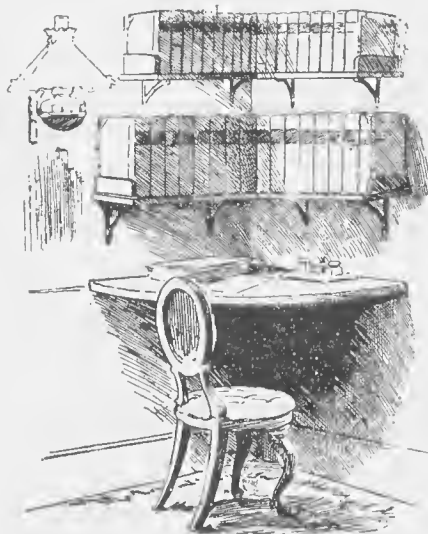
A hot compress will also oftentimes allay inflammation, relieve tightness in chest and throat, assist where the kidneys are implicated and allay pain in general. It is the safer of the two. The "hot compress" is more commonly called a fomentation.

When it is removed cover the part with dry, hot flannel or cotton batting.

A speedy way to bring about the same results is to wrap a hot brick first in a wet cloth, then in many layers of dry cloth, and apply to the seat of pain.—Practical Farmer.

Practical Helps to Pretty Homes.

A writing table of some kind is, if not an absolute necessity, at any rate one of the most useful luxuries of life. Writing a letter is not a thing to be lightly undertaken if it involves a search all over the house for pens, ink, and paper, a pause at the end of the first sheet while the ink



A CORNER WRITING TABLE AND BOOK SHELF.

dries, because no blotter is at hand, and the probable discovery, when the letter is finished, that a stamp cannot be obtained for love or money without journeying to the nearest post office for it.

"A place for everything, and everything in its place," is a rule that is not a bit the worse for not being new.

We may not care to buy a writing table, but there are four corners in the average

room, and surely one can be spared for the purpose.

The shelf itself will be anything but a costly affair, even if you cover it (as my friend did) with thin leather paper, such as is used for writing tables proper. Neatly and securely gummed on, with an edging of leatherette braid, this gives a dainty finish.

Three inches all round should be left bare, and stained to correspond with the other furniture of the room.

The bookshelves over the table are extremely useful, as bookshelves always are, and somehow have the air of being "at home" with it. Writing and reading go so naturally hand in hand, that it is a pity to give books and pens and ink places in different corners of the room.

An improvement which I would suggest is that five cigar boxes, minus their covers, be polished and placed on end, side by side, at the back of the table to form pigeon holes.

No one who has once known the convenience of having pigeon holes in which to keep bills, receipts, letters, etc., separate and easily get-at-able, would ever willingly be without them.

Humorous.

Faithful.—"My duties are light," said the street lamp, "but I must stick to my post."

"Papa, if you hadn't married mamma"—"Well?"—"What a lot of fun me an' you could have—a-doin' as we pleased."

Baggs: "It is said that Dame Fortune knocks once at every man's door." **Gaggs:** "Well, it was her daughter, Miss Fortune, who called on me."

"How old are you?" asked the conductor of a little girl who was trying to ride for half fare. "I'm nine at home, but in cars I'm only six and a half."

"Mamma," asked a little fellow of 5, "now that I've got a jackknife and a pocketbook, ain't I a man like papa?" "Well, then," he continued, "I wish you'd look and see if my whiskers is sprouted yet."

One day little 3-year-old Mamie was passing through the market with her mother, and, seeing a strange-looking object, she asked what it was. "Why, dear, that's a head of cabbage," replied her mamma. "Zen where's its mouf and eyeses?" she asked.

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A Perfect Kingdom.

A man can build a mansion
And furnish it throughout;
A man can build a palace
With lofty walls and stout.
A man can build a temple
With high and spacious dome,
But no man in the world can build
That precious thing called—Home.

No, 'tis our happy faculty,
Oh women, far and wide,
To turn a cot or palace
Into something else beside;
Where brothers, sons, and husbands tired
With willing footsteps come;
A place of rest, where love abounds—
A perfect kingdom—Home.

—Canadian Home Journal.

Coming Shirt Waists.

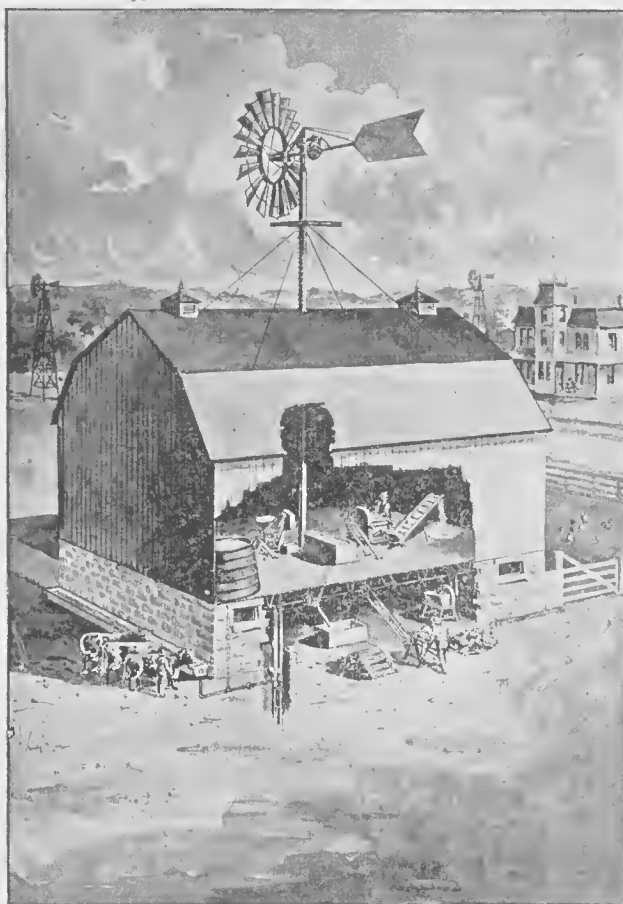
One very great change in style is displayed by the newest shirt waists; the collar is detached, but of the same material as the waist. We have been wearing white collars for several seasons now; they are usually more becoming than a collar of the colored goods and it will be a little difficult to grow used to the change. The white collars are certainly preferable in other ways, too, for the colored material is likely to fade more in the collar than in the waist itself, owing to the extra starching. The new collars so far noted, are all of the stand-up shape, preferably cut on the bias; the cuffs are bias, also. The sleeves are much tighter than last year, having the slightest possible amount of fullness at the top, and literally none at the cuff. The shape of the waist itself shows little alteration.

It is noticeable that the bayadere stripes of last year are repeated this season, many waists being made in this style, both waist and sleeves having cross stripes. Other styles include striped waists having the front cut so that the stripes run bias, with narrow tucks across the bust. These cross tucks in the bias material are very pretty. Another style, when the material is not bias, is to tuck the front vertically for a width of about three inches on either side of the centre, the tucks being almost as narrow as cording. The sleeves are often tucked across the upper part of the arm.

In colors, the shirt waists shown so far are very brilliant. Stripes and plaids of watermelon red and white are shown in gingham and chambray, very showy but handsome, and a great variety is seen in all shades of lilac, lavender and purple. Lettuce green and delicate blue are as prominent as last season. Among these early displays, gingham, chambray and madras predominate. We are promised an infinite variety of white shirt waists, which seem likely to be as popular as ever. Fashion authorities say that simple cotton frocks, consisting of a shirt waist with a skirt of the same material, will be approved by the most critical this summer, and such a style is both pretty and convenient for country wear. The skirts are to be gored, and either trimmed with festooned ruffles, or with a gored flounce, headed with straps of the same material. This is a very serviceable style for gingham, percale or cambric.

Does your wife like farming? Why not? Simply because she is over-worked, I expect. Sit down and make a list of what your wife does, then make a list of what you do, and compare, and perhaps you will see why she does not like farming.

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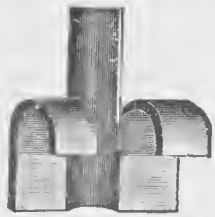
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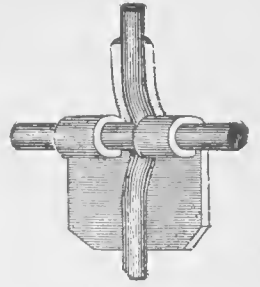


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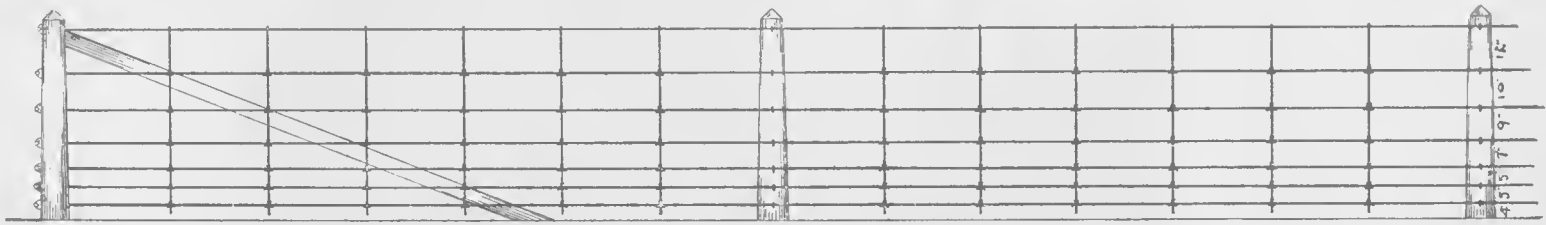
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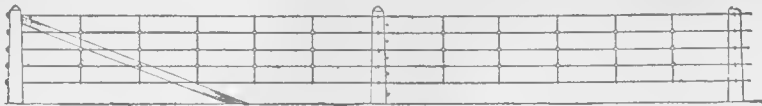
It is made throughout of No. 9 plain galvanized Steel Wire, both horizontal and upright wires, consequently all its parts are equally strong. **THE STEEL CLAMP** securely fastens the running and cross wires, thus consolidating the strength of the fence, so that the whole fence resists an attack on any part of it.

is perfectly safe, and at the same time an effectual barrier against all forms of stock.

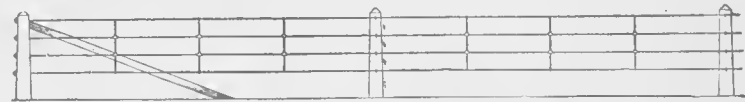


This Cut represents our 7 Strand Fence, with 6 Uprights to the rod, 28 in. apart.

THE ANCHOR FENCE being constructed exclusively of large wires, is consequently **STRONGER** than a fence in which small wires are used.

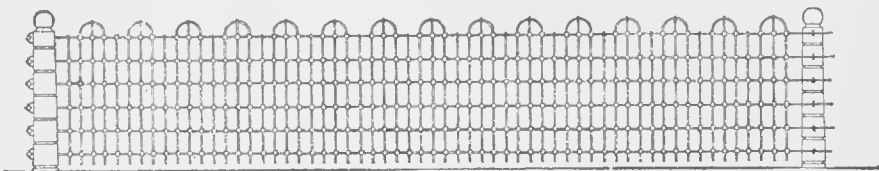


Our 5 Strand Fence, 5 Uprights to rod, 2 3/4 ft. apart.

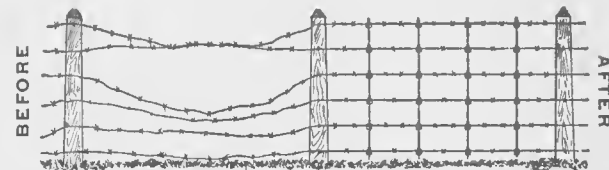


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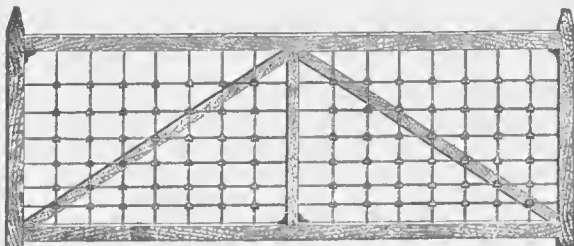


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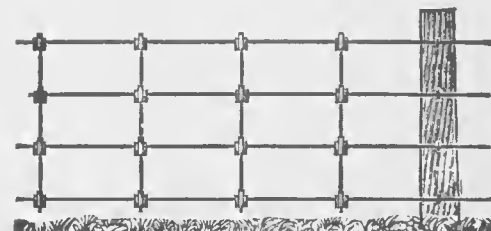
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NORTH-WEST BRANCH.

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Their Honeymoon.

It was a perfect night. The silver moonlight flooded all the familiar landscape, bathing it in mystic depths of unfathomable brightness and transfiguring all things into a fairy-like beauty. A beautiful night—a night of stars and fleecy cloudlets, and soft sweet odors from a thousand pungent leaves and fragrant flowers distilled by the silent dews.

Olive and Janet had gone upstairs to their little room, and now sat upon the floor beside the low window looking out into the moonlight. On such a night sleep was out of the question, for an hour at least, and so they sat, slowly unfastening their hair and gradually preparing for bed. A murmur of familiar voices on the little porch below sounded in their ears and hushed them to silence. They leaned together on the window-sill and listened. The sisters knew the voices well—the dear voices of father and mother. They had come out into the porch before going to bed, and were sitting on the old time-worn bench there looking at the calm, clear night. The sisters could imagine just how they were sitting, though they could not see them, the dear old mother with her hand on her husband's knee and his broad, homely hand covering it, they had seen it so often, "Darby and Joan," Janet called them, lovingly.

"Mother," they could hear the old man say, and there was a little tremble in his voice, "it's most fifty years since we were married—do you mind? Next week a Wednesday'll make it fifty years. Mebby we'd oughter have a golden wedding to kind o' celebrate—what think—mother?"

"'Twould be nice, father," they could hear her answer, "but I guess we hadn't better think of it: 'twould be an awful sight o' bother, an' what with Olive teachin' an' Janet to do all the work with what little I could help, 'twould make it pretty hard. Guess we hadn't better, father."

There was a little silence, and then the old man spoke again:

"Hanner," said he, "we didn't never have a weddin' journey nor a honeymoon. Almost seem's if we ought to have 'em now. You know how 'twas—we was poor an' couldn't even afford to go out to Uncle Eben's for a little trip, but settled right down to housekeepin' an' hard work at once, without a bit o' play spell. In all these years we ain't been nowhere to speak of, except to the Centennial, an' we didn't neither of us enjoy that, what with the rush an' the crowd an' confusion. Seems if 'twould make us feel young again, somehow."

"'Twould be nice, father," they could hear the gentle voice murmur, "but guess we hadn't better think of it. Mebby the children would think 'twas kind of childish."

"Mebby they would, mother," the old man answered quietly, and then there was silence. After a little while they went into the house and the girls heard them look the door and wind the clock, and then all was still. Something glistened in Olive's great dark eyes and the moonlight touched to crystal clearness a drop upon Janet's fair cheek. The two girls crept into bed and lay talking in low voices for a long time before they went to sleep.

For the next few days there were busy preparations in the old farm house. Mysterious doings were going on all over the house. Mother was hustled off somewhere every day to visit some friend or neighbor in the vicinity, who gladly welcomed the dear, kind soul and her perpetual knitting work.

Father and "the boys," stalwart men of twenty-five and thirty, were busy in the field and orchard doing up the fall work. Janet worked away happily all day, and when at four o'clock Olive came home from the little red-painted district school-

house she donned a big apron, put on her thimble and went resolutely to work in her own room upstairs. Evidently something was in the air.

Wednesday morning dawned bright and clear, with that indescribable crispness and sparkle in the air that makes October a royal month.

Olive had asked the trustee for the day, and he had granted it willingly; Janet looking like an apple blossom in her pink calico gown and snowy white apron, flitting about the house on light feet, seeming to be everywhere at once.

John and David were wrestling with their Sunday neckties and polishing their boots to the very highest possible shine.

The old folks looked on wistfully, but silent, wondering what all the commotion was about.

Out in the woodshed father confided to mother this piece of news: "Guess the children must be goin' over to Millerville to the county fair. But it does seem kind o' curious they don't speak about it."

"That's so" mother made response, "but mebby they think we're gettin' too old to be took into their affairs," and she sighed a tremulous little sigh that told plainer than words the sadness that she felt.

Almost simultaneously Olive's clear contralto and John's deep bass came ringing down the stairs. "Mother, please come up here a few minutes" and, "Here, father, I want you upstairs a little while."

Wondering a little, but never guessing, they went upstairs together, and in the hall parted. What mother saw as she entered her daughter's room was a shining, silvery mass of something lying on the neat white bed, a soft and silky pile of material which gradually took the form and shape until she saw a beautiful gown, whose delicate laces in neck and sleeves combined with the soft grey tint, made it look bridelike, indeed.

"Oh, girls!" was all she could say, as Janet put her into a chair and began to take down her little coil of white hair.

"Dressing the bride" occupied perhaps an hour, and when at last the toilet was announced complete the faded blue eyes behind the gold-bowed glasses saw in the large, old-fashioned mirror a sweet and dainty picture—a beautiful-faced old lady with delicate heliotrope nestling among the laces at her throat, and a tiny spray in her hair.

A faint, pink flush of excitement had come to the withered cheeks which made the old face a sweet history of what it had been in its youthful prime. Olive and Janet kissed her triumphantly.

"Mother, you don't realize how sweet and young you look! you have worn black so long." And, "Oh, mother, we're going to have a wedding in this house to-day, and you are to be the bride!"

"Fifty years ago to-day," the old bride softly murmured, looking down at the thin circlet of gold that she had worn so long, and in her heart a sudden longing sprang up, newly kindled, a quick and strong desire for him who had been her husband all these years.

She looked wistfully toward the door and took a faltering step towards it, but just then it opened, and John and David entered escorting between them proudly the hero of the day, attired in a fine new suit of broadcloth, with a festive little posy in his buttonhole and a face beaming with renewed youth and gladness.

The children were forgotten in the quick impulsive embrace that followed, and the long kiss of love and honor and fidelity that had crowned that half century of wedded life.

That was a day never to be forgotten in all the country round. Everybody was there. Not only the old who had grown old with the happy bride and groom, but the middle-aged and strong. A great

table had been spread out of doors under the drooping elms that had been slender treelets on that wedding day fifty years ago.

The minister who had married them was long since dead, but his son, a middle-aged dominic, had been procured for the occasion and performed the marriage ceremony with grace and dignity.

Olive and John acted as bridesmaid and groomsmen, looking very happy at the complete success of their innocent conspiracy.

Congratulations and gifts were many. The bridegroom seemed scarcely to need the support of his handsomely engraved gold-headed cane, he felt so young, despite his seventy-two years, and stepped blithely and briskly about among his guests, with his slim little wife upon his arm, smiling and happy.

When the dinner was at last over David pressed something into his father's hand—two tickets for the Western city in which his married son lived.

"Your trunk is packed and ready and the train leaves at four o'clock, father," he said, with characteristic straightforwardness. "All you've got to do now is to take your wedding journey and enjoy a six-week's honeymoon at Sam's."

The other children gathered around and laughed gleefully at the bewildered joy of the newly-wedded pair.

"It's what I've wanted to do ever since Sam went West," the old man said quaveringly, and the tears stood in his eyes. The mother only turned and leaned her head upon the shoulder of her tall Olive—and Olive kissed her. There were misty eyes all round and smiling faces as the carriage drove off, amid a generous shower of rice and an old shoe thrown by some one for good luck. And as the guests dispersed after examining to their curiosity's content the array of substantial gifts, the young folks at the farm congratulated themselves and each other upon the wonderful success of the scheme.

And as the train sped westward over the shining rails the little old bride sat in quiet happiness at her husband's side and looked at the flying landscape. There was a sweet peace on the dear, wrinkled face, and a light of newer, deeper tenderness in the blue eyes behind the glasses.

People noticed how lover-like the old man's attentions to the slim, little old lady by his side, and some even wondered if this were not possibly the happy ending of some life-long romance. But no one heard him as the bridegroom leaned and said, in a low voice, "It's been a grand day, Hannah—a day full of all kinds of nice surprises, but there ain't nothing makes me feel better than to know that after all we ain't too old for the children."

And the bride made soft response, "That's so, father."

Then there was a long and blessed silence as they journeyed on together "in that new world which is the old," the world for love.—The Portland Transcript.

"Mamma, do you know how I get in bed quick? Well, I step one foot over the crib, then say, 'Rats,' and scare myself right in."

"Mr. Meeker, your nose looks just like other folks' noses."

"Hush, Willie!"

"I heard you say the other day, mamma, that Mr. Meeker had his nose to the grindstone for seventeen—quit that!"

The governess was giving little Tommy a grammar lesson the other day. "An abstract noun," she said, "is the name of something you can think of but not touch. Can you give me an example?"

Tommy—A red-hot poker!

A Young Cowboy.

Under a lone oak tree, in a beautiful grass plot, near the outskirts of the town of Mulhall, Oklahoma Territory, stands a handsome stone mausoleum, which marks the last resting place of the youngest cowboy that ever bestrode the hurricane deck of a stock saddle, a young hero who was known all over the great Southwest. Logan Mulhall was his name. He was the son of "Zach" Mulhall, an old-time cattleman, having spent years on the ranges before they were traversed by barbed wire or the long trails were blocked, and long before Oklahoma was even a dream.

Logan was born in the Indian Territory in 1881. The boy grew among the cattle, the cowmen, the broncos, the Indians, and the prairie flowers. At the age of six years Logan had gained fame among the cowmen by his skill with the six-shooter and the dash and bravery of his horsemanship. At that time Logan had several fine riding animals, both Indian ponies and thoroughbreds. He was "turned loose," as it were, to a free, roving life on the prairies. This can be taken literally, for the boy actually lived on the prairie, and made his home at the various cow camps in the Indian Territory. He worked with cattle, and became an expert with the lasso, as well as with revolver and Winchester. Every cowman in the Territory and Northern Texas knew Logan—"Zach Mulhall's boy." He was as familiar as any old cattleman with the brands of cattle coming from Texas to graze on the immense ranges then open in the Indian Territory. He knew all the brands as well as a city-bred boy knows his A B C's. He attended all the general round ups throughout the Territory each spring from the time he was six years old. He owned a band of cattle—his own individual property; he did all his own work in superintending the care of his herd; he broke his own horses and did his own trading. The cowboys in the Territory were very kind to him, and at the round-ups they gave him the "mavericks," which increased his herd to a nice number. The cowboys all looked out for Logan's interest, and took care of his cattle whenever they found them on the range.

Passing his young days in this wild region, it was not surprising that Logan should acquire skill in the use of firearms. The six-shooter was often the sole arbiter in a dispute among the rougher element, and a boy being reared in the cow camps would naturally learn to use a gun while learning to use a spoon. At six years of age Logan was considered a prodigy as a marksman, and he could use the six-shooter as dexterously as many a cowman. When but ten years old he could do the "fanning" trick with a Colt's revolver, by which the weapon is made to revolve on the forefinger and is turned into a miniature Gatling gun. While riding a pony at breakneck speed he could send a bullet through a handkerchief thrown in the air, or he could hang on the side of the pony, and, with the gun over his shoulder, he could hit a target as he went flying by. While riding his pony at a "dead run" he could hang from the saddle and pick up a handkerchief from the ground. This difficult trick was child's play for this boy of twelve years of age.

He could also perform many difficult feats of offhand shooting with revolver and Winchester from a pony. He would often ride away on his pony, followed by his big dog Queen, and live among the Comanche and Arapahoe Indians for two months at a time, and his parents would not know of his exact whereabouts. While these tribes are blanket Indians, and the most troublesome in their almost savage

state, yet Logan was as safe among them as if he were walking through the barn lot at home. They looked upon his skill in horsemanship and marksmanship with awe, and worshipped him with the respect they show to a supernatural being. He was always a welcome visitor around their camp fires. The door of every tepee opened wide upon his coming. He was also held in high esteem by cowboys, United States deputy marshals, cattlemen, and desperadoes alike. Although passing his childhood days among the rough classes of frontier life, he did not become contaminated. He was simply born to the soil, and was as free as the wind. He was never known to swear, even in the society of frontiersmen whose only idea of emphasis was an oath. His fervent love for his mother was a dominant trait that won the admiration of the hardest hearted desperadoes.

Many of our readers have read of the exciting scenes attendant upon the opening of Oklahoma Territory in 1889. When, at the crack of a Winchester 100,000 persons started across the line to locate claims, Logan Mulhall, eight years old, in the lead. Hundreds of men knew that

When Oklahoma Territory was being organized, Logan County, in which the Territorial capital, Guthrie, is situated, was named in honor of Logan Mulhall. In the same county and a number of miles north of Guthrie, is the town of Mulhall, which was founded by "Zach" Mulhall, and named in honor of his son Logan.

When the Cherokee strip was opened, Logan Mulhall was on his pony, ready to make another "run" and guide his father to a good claim. On that day he made the "run" with his father, mother, one sister fourteen years old, and another sister of eight years. All rode ponies. Logan led the bunch. Corner lots were located in the town of Perry. They were sold for \$1,285, and Logan and the family spent the money in visiting the World's Fair at Chicago. The ride to Perry from the starting point was twelve miles, and it was made over the rough prairie in one hour and twenty minutes.

When only twelve years old Logan took a herd of one thousand cattle across the Territory for his father. At the same age he went with a hunting party to Colorado. One day he shouldered his Winchester



A Yorkshire Beck.

the boy was familiar with the country, and could locate the richest land in the new El Dorado, and they had determined to follow him on the day of the great "run." He knew this, and made his plans accordingly. Every hill and hollow of the country was known to him, and he and his father devised a shrewd trick to defeat the plans of the "boomers." When the "run" began he started away in a direction opposite to that which he intended to pursue. He led an army of men down a long ravine, and then suddenly darted away in a "draw" of the prairie and was lost to his followers. He rejoined his father, and they located a claim of 160 acres that lay near the present site of the town of Mulhall.

"Zach" Mulhall, being a prosperous trader and live stock dealer, kept buying adjoining claims, until he soon owned a magnificent ranch of 2,800 acres. Over 2,000 head of cattle were soon under the care of Logan on this ranch. A comfortable house was built, and Logan left the cow camps and lived at home with his mother. The entire ranch was presented to him, and he managed it, superintending all the care of the stock and doing all the trading.

and walked away from the camp in the Rockies. An hour later several shots were heard in a gulch up the side of the mountain. Fearing the boy was in danger the men hastened toward the locality of the shooting. They found the boy lying exhausted on the ground, his Winchester in his hands. Not thirty feet away lay a huge grizzly bear stone dead, a victim of the boy's unerring aim. The bear had come into sudden view a number of rods away, and Logan, taking deliberate aim with his gun, shot and crippled it. The enraged animal roared and started for the boy. Logan started to run for a place of security, when he tripped on a wild vine and fell. He looked over his shoulder and saw the bear was close upon him. But his nerve and courage did not leave him. He raised himself on one knee, again took careful aim with his repeating Winchester, and let go a number of shots at the approaching bear. The bear finally keeled over, a few feet away. It was shot through the heart.

By the time he was fourteen years old he was a magnificent specimen physically, being nearly six feet in height, and with broad shoulders to match. His face, tan-

ned by wind and sun, was of a deep copper color, and with a blanket over his shoulders he would have been taken for an Indian. His hair was long and black, and his eyes were blue and piercing. At this time he left the ranch to attend school in the East. During the Christmas vacation in 1895, which was spent at home, he caught a severe cold, which developed in diphtheria, and proved fatal. As was his wish, he was buried under a lone tree at the northern limit of the ranch, near the town of Mulhall. The handsome mausoleum invariably attracts the attention of travellers on the Santa Fee trains. In a short time a life size equestrian statue of marble, representing Logan riding his favorite horse, will be erected on a granite pedestal in front of the tomb. In this statue the young cowboy will be represented with a lariat, Winchester and pouch of bear skin. This statue was donated by the cowboys of the Southwest.—Harper's Round Table.

A Word to the Girls.

Girls in the country sometimes grow tired of the quiet routine of farm work and long for the excitements and attraction of city life, says a writer. But life in the city is not the public holiday it seems to the girls on their occasional visits to the town. Believe me when I tell you that working girls in the city have an indefinitely more monotonous existence than the country girl ever dreamed of. You get up early and work hard, it is true, but the picnics you attend in the summer and the sleigh-rides and parties that enliven your winter give you social recreation and change, while there is not always the keenest enjoyment for those who know how to read Mother Nature's book.

Think of spending every working day in a dingy office, writing and figuring constantly, with but half-a-day's vacation in three years, as one girl I know of has done! Think of spending all the hot, dusty days at a sewing machine in a factory with the ceaseless clatter of hundreds of other machines about you! Think of walking two miles to work, standing behind a counter all day, forced to smile and smile, though you feel like a villain ought to feel, and walking home again at night! All these things thousands of girls in the city do.

One girl I know stands and irons ready-made shirtwaists all day, week in and week out. Where is the variety in her life? How would you like to exchange your duties with them? Do you not think it would be a welcome relief to them to milk in the cool of the morning, churn, peel the potatoes for dinner out under the shade of a tree, and, after the dinner work is over, to sit in the cool and shady yard or rest in the hammock, or take a canter on the pony, or in the fall to go to the woods in search of nuts, and at night to lie down and breathe in the sweet-scented air of the country, instead of sewer-smells and effluvia of dirty alleys?

How would you like to pay out of your scant earnings for every specked apple or withered peach you ate? Why, if you lived in the city you would have to pay for fruit that you would not pick up from the ground now. How would you like the ever-present possibility of losing your place and having your income cut off for a time, with no money to pay the expenses that always accumulate so fast? Think of all these things before you give up the quiet and peaceful life of the country with the certainty of a comfortable home even if you do not have ice cream and fried chicken every day. To make the best of what you have is better than to rush into evils that you know not of.

How to Get Well Without Medicine.

The Public Health Journal furnishes the following suggestions in the way of preventives for every day ills:

Try cranberries for malaria.
Try a sun bath for rheumatism.
Try clam broth for a weak stomach.
Try cranberry poultice for erysipelas.
Try eating fresh radishes and yellow turnips for gravel.

Try swallowing saliva when troubled with sour stomach.

Try eating onions and horseradish to relieve dropsical swellings.

Try buttermilk for the removal of freckles, tan and butternut stains.

Try the croup tippet when a child is likely to be troubled with croup.

Try hot flannel over the seat of neuralgic pain, and renew frequently.

Try taking cod liver oil in tomato cat-sup if you want to make it palatable.

Try hard cider—a wineglassful three times a day—for ague and rheumatism.

Try taking a nap in the afternoon if you are going to be out late in the evening.

Try breathing the fumes of turpentine or carbolic acid, to relieve whooping cough.

Try a cloth wrung out from cold water—put about the neck at night—for a sore throat.

Try an extra pair of stockings outside of your shoes when travelling in cold weather.

Try walking with your hands behind you if you find yourself becoming bent forward.

Try a silk handkerchief over the face when obliged to go against a cold, piercing wind.



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(Copy.) Signed, W. R. F. COLLIS,
H. J. de WINTON.

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How to Get and Keep a Home Happy.

By Miss Annie Ross, Bru, Man.

In the first place, I would say, when a young couple at the altar take upon themselves the solemn vows of loving and cherishing each other, that at that very moment and henceforth they should be a comfort to each other, through sickness as well as health, because nothing but true love should have prompted them to have taken such a solemn step. Here, then, is where happiness should begin and continue as long as they are spared, be

ily require riches, but rather that everything be perfect harmony, such that one could compare it to the sweet tones of a musical instrument, we will have a home of which we can say, "Happiness reigns here."

For instance, just look back to the time when our forefathers went into the dense forest, and commenced to cut down the trees to build a home for themselves and family, even hewing and making their own furniture. Their humble home was not as the homes are now-a-days, heated with stoves and furnaces. They had only a fire-place and instead of the house being lighted with gas or coal oil, tallow candles were used, and yet they were happy.



Moosomin Hounds.

it for years, and though the once golden locks may become white with age. All through life they should sympathize one with the other.

We all know that housekeeping is not very easy work if it be done properly, so, let not the husband come in and unnecessarily find fault just because something has annoyed him, but talk cheerfully and pleasantly and enter into her work with his whole heart, then everything will go smoothly along, just like the still waters of a mighty river. Let it be vice versa, too, for as Cowper says:—

The kindest, and the happiest pair
Will find occasion to forbear,
And something, every day they live,
To pity, pardon and forgive.

Let your chief place of enjoyment be at home, and not spend night after night at the theatre or other so-called place of amusement. Supposing you have a child, so long as it remains in health you are seemingly contented to leave it in care of the servant, but that is not the proper way to do. It is yours and you should take it with you or remain at home, as you are the only one who should take care of it. If you don't you may get careless, then, if sickness should come, and oh! if it be death, and you have neglected it, what a terrible thought you would have on your mind. I fear happiness would be gone forever, for, you could not console yourself by saying, "I did all I could for it while it was here." Again, I say, let the chief pleasure circle be at home.

Do not feel as if you were pledged to stay at home, but let it be from love, in other words, those who attend to the duties devolving upon them will find, that love meets them at the door and goes with them into whatsoever sphere they are placed. Do not let home be what some consider a happy one—costly house and furnishings—little thinking that it all depends upon themselves whether the home be happy or not. You may have in the home all the costly ornaments that the hand of man can make, and in the end it may be compared to the flower in the field, which blossoms and flourishes, but soon fades away. In disappointment, then you will be led to exclaim, "Happiness is not found in this way." By understanding that a happy home does not necessar-

Happy the home when God is there,
And love fills every breast;
With one their wish, and one their prayer,
And one their heavenly rest.

Happy the home where Jesu's name
Is sweet to every ear;
Where children early list His fame,
And parents hold Him dear.

Happy the home where prayer is heard,
And praise is wont to rise;
Where parents love the sacred word,
And live but for the skies.

Lord, let us in our homes agree,
This blessed peace to gain;
Unite our hearts in love to Thee,
And love to all will reign.

A hen is like the British Empire—her son never sets.



Ed Kerr's One Day's Shooting on Whitewater Lake, Man.

The Rights of Women.

By Amicus.

I would like to say something about the "Rights of Women," not about "Woman's Rights." The latter sounds too much like the platform woman—those who talk about women assuming men's places in business, politics and so forth. I do not intend to dwell on them at all, as I do not believe in them. A woman's place is in her home, taking care of her husband and children, but I think she might have a little freedom in her own home. When a man marries a woman he takes her to be mistress of the home he

has provided for her and to be queen of his heart—not to be his slave. Some men think it is their right to manage the household affairs as well as their own. He who tries to do so interferes with his wife's rights and discourages her as well.

Some men are so absorbed in money matters and in getting on in the world that they allow their wives and children to work too hard and do not notice the weary, faded out expressions on their faithful faces. The wife never dreams of complaining—perhaps it would be better if she did. I know there are some instances where a wife has to work hard, perhaps a little more than her strength will allow, to help the husband make a living, but her husband might play the part of master a little less and be a little more of the lover. There is nothing so discouraging to a hard working woman as to be found fault with at every turn. The man who complains about his wife not keeping the house clean, or about the training of their children, and has an idea that she wastes all he saves, is a tyrant and had better beware.

I do not claim that all men are like this, but there are some a great deal worse. I would like to give a word of advice to such men. It is this. If you have any love in your heart for your wife, try to be a little more forbearing with her, and remember that housekeeping and caring for children are very trying on the nerves. I would like to say a word to the women, also. Remember that being a good, faithful wife and mother is the noblest duty God has bestowed on women.

"Mother, Sissy swore. She said she wouldn't wear her 'darned' stocking to church."

Edgar, aged 4, accompanied by his mother, was watching a regiment of soldiers, headed by its band, marching by. "Mamma," he asked, "what's the use of all them soldiers that don't make music?"

There is a little boy in Denver who is as bright as an 1899 dollar, but he doesn't always have a ready command of language, says the Denver Times. The other day his sister got married, and Willie was the happiest boy in the crowd, for his

newly-acquired brother-in-law had been generous in the purchase of candy for the little fellow. After the ceremony was over and the time for the shower of congratulations had arrived, Willie was one of the last to reach his sister and her brand-new husband, and when he did get here he took hold of their hands and studied for some time before he could say anything.

"Poor little fellow, he is almost crying, too," said the bride.

"No, I ain't," was the brave reply; "I have forgot that thing I had fixed up to say and was trying to think of somethin' else—oh, yes, wish you many happy returns of the day—that's what I had thought up—wish you many happy returns of the day."

Small Mammals of Manitoba Destroyed by Birds of Prey.

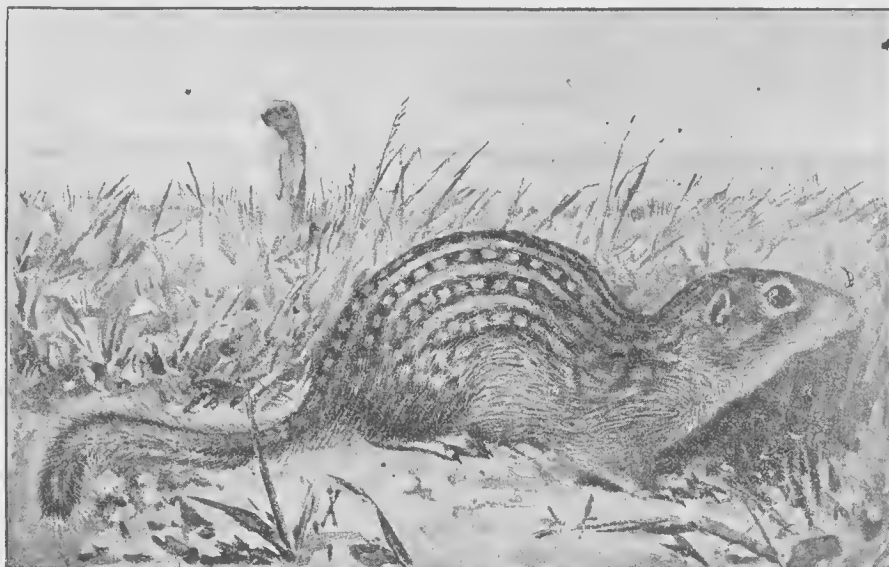
By A. E. Atkinson, P. la Prairie, Man.

The small mammals which constitute the greater portion of the bill of fare of the birds of prey, and those most destructive

ties of grain. At this rate a few pairs of mice wintering in a stack or granary would be very damaging to the farmer in one season. This is the species which most frequently falls a prey to the rough-legged hawk during twilight or to the owls which hunt by night. A pair of owls or hawks about a grain stack during the harvest will do much towards the extermination of these pests. Seemingly to know their own

clearings, but it is never as numerous as the better known species.

The notoriety of the ground squirrels or *Spermophiles*, is far more general among agriculturists than that of the mice, to which animals they are second only in numbers. Being much larger animals, their destructive qualities, which are enormous, would prove the ruination of the country were they as numerous as mice. They construct burrows of great length and depth along the fence lines, roadways and uncultivated fields, and although they seldom burrow in the grain fields, they pay them regular visits both to feed upon and carry off large quantities in their cheek pouches to be stored away in their burrows. The damage done by these rodents is, as in the case of the mice, not apparent, or at least, not credited generally to the agency of these animals, but if we estimate one pint of grain daily to each ten gophers, and with this number of animals along each fence line of a grain field, it would mean two quarts of grain daily destroyed. This amounts to almost two bushels of grain in a month taken by these forty animals, and this in the spring during seeding would mean a great drain upon the fall yield. Taking the annual increase of these animals to average five young pair, we would find 100 young gophers to cut down the growing grain through the summer and 140 gophers to attack the ripening and standing crop in the fall, and it would require nearly two bushels per week at the foregoing rate to feed this number of animals. I have placed the average at 40 gophers per field, which I consider a very small average, as in some larger fields this number can frequently be found upon one side of the field. When undisturbed for a time these animals become quite bold and unconcerned, and complaints have been made that the larger species will at times seize upon young chickens and carry them off. Certain it is that they are fond of flesh, as they will kill and eat birds while in captivity, and for this reason I believe they do much destruction among our smaller ground-nesting birds. They are, however, credited with destroying quantities of injurious insects.



Common Striped Gopher (*Spermophilus tridecemlineatus*).

to agricultural interests, are mice and gophers. Of the former group there are, besides the domestic mouse, three species which may be considered common, and whose ravages are worthy of attention. Chief among these in numbers and destructiveness is the common field mouse (*Arvicola riparius*). This chunky, short-tailed, unintelligent-looking little animal is familiar to nearly everyone, being of wide distribution in our province, and it will always be found in greater or less numbers wherever there is a grain field or granary. The field mice nest below the ground in the fields, so that they are constantly in the midst of abundance of food with a minimum of exposure to enemies. They are exceedingly prolific, and it is estimated that the increase under favorable circumstances from one pair of mice would be over 14,000 mice in five years, if we allow each pair to breed for two years, as each pair will raise at least ten young each year. The numbers of these animals in a given district would seem almost incredible to the majority of people, as the animals are mostly nocturnal, and, unless disturbed by daylight, they never move from their hiding place, and when disturbed they readily hide behind any cover available. On account of the favorable protective grey color of the animal, they generally escape observation, unless one is especially looking for them. On one occasion, in September, 1897, I was desirous of securing some of these mice. I visited a field where threshing was in operation, and, with two boys, I followed the stook teams about, and in less than one acre of ground captured sixty specimens, and during this time as many more escaped uncaptured or were killed and eaten by a dog in attendance. The boys subsequently visited the same field for the sport of killing the animals, and inform me that my catch was only an average to be found over the whole section. This would mean, allowing two-thirds the number captured to have escaped, 100 mice per acre, or 64,000 mice on that section. Now, as by experiment I proved that 50 mice would destroy one pint of grain daily, and as this grain was standing stooked for about three weeks before threshing, these animals would have consumed large quan-

ties of grain. At this rate a few pairs of mice wintering in a stack or granary would be very damaging to the farmer in one season. This is the species which most frequently falls a prey to the rough-legged hawk during twilight or to the owls which hunt by night. A pair of owls or hawks about a grain stack during the harvest will do much towards the extermination of these pests. Seemingly to know their own



Gray Gopher (*Spermophilus franklini*).

hawks and owls.

Of the second species, the red-backed mouse (*Arvicola Gapperi*) or Gapper's mouse, no special mention is necessary, beyond the description of the animal, which is, if anything, a trifle smaller than *riparius*, and the whole back is reddish-brown. It is found usually in company with the field mouse, and their habits are about identical, save the *gapperi* may be more numerous in the vicinity of fresh

chiefly in the larval form, but any beneficial qualities in this regard are quite offset by their destructiveness. It is therefore plain that agriculturists are very unwise to destroy the hawks which prey upon these pests and leave them to increase and continue their depredations unchecked.

The most generally known *spermophile* of the three species inhabiting the western prairies, and certainly the most generally destructive to grain crops, is the striped

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spermophile. *Spermophilus tridecemlineatus*, more familiarly known as the striped gopher. This species ranges from the Red river valley across the province, and from the U. S. to latitude 53 deg. n. It is possibly most common in the district east of the gravel ridges and hills, and can be seen along every roadside and in almost every field in greater or less numbers. Scurrying along in a mouse-like fashion to the entrance to its burrow, where it elevates itself upon its hind legs and remains motionless as a stake until approached too closely, when, with a shrill whistle or trill, it disappears apparently into a block of wood, a small clump of grass of a fence-post, which usually conceals the entrance to the burrow. As this species frequents the grain fields and more open ground, it is the usual prey to the large hawks, which may be seen beating up and down the fields, and these hawks know that when a gopher disappears into his burrow he is full of curiosity and will soon come out again to see what frightened him. The hawk, by remaining motionless at the edge of the hole, is able to creep the animal suddenly upon his reappearance, if he is not meanwhile shot as a chicken thief.

Of the two remaining species, Franklin's spermophile. (*Spermophilus Franklini*), gray gopher, gray squirrel or brush gopher, as it is also called, is a much larger species than the striped spermophile, but is not generally so numerous and is destructive according to its numbers. The gray gophers range the entire fertile belt of the prairie country from the Northern States to Carlton House on the Saskatchewan river. They prefer the vicinity of rank herbage or brush, and their food is more of a wild nature, unless they happen to be in the vicinity of a grain field. At such times they can do great damage, if found in any numbers. This species will most frequently fall a prey to the red-tailed hawk and kindred species which sit about these brushy localities alert for straying rodents, and also to the diurnal hunting owls, whose noiseless flight allows of an unsuspected approach. They are a much more awkward animal in motion than the striped gopher, and are, therefore, more easily captured. If they are once exterminated in a locality they do not return for some time, as their rate of increase is not so rapid as that of the other species. This species is distinguished from the succeeding by the long bushy tail and uniform gray color.

The remaining species is Richardson's spermophile (*Spermophilus Richardsoni*), a shorter-tailed species than *Franklini*, and the tail is not nearly so bushy. Its range in the more gravelly and hilly portion of the province from Dakota north to Carlton House on the Saskatchewan river and west of a line drawn through Carberry and Petrel. It resembles the prairie dog, (*Cynomys ludovicianus*) in both form and color. It is abundant in fields and fresh clearings, and even in populous districts in many places is exceedingly numerous. Many western farmers, who do not know the Franklin spermophile, complain of this species, and there is little doubt that it is on account of the excessive numbers that the damage done is so apparent. They are bolder and more savage than either of the other species, and this would make them an easier mark to the larger hawks. As all three species of spermophiles are diurnal (being most active in morning and evening), the owls (save the few diurnal hunting species) are unable to persecute them, and as they all hibernate during cold weather and store up food for inclement weather, they escape the persecution of the winter visiting species of hawks and owls, and therefore have that much better opportunity to increase.

The term gopher, as applied to the spermophile, is inappropriate, as the gophers are a different class of animal, the spermo-

phile being more correctly speaking ground squirrels, while the succeeding species is the only gopher we have in Manitoba.

The only remaining grain destroying mammal to be noted is the gray pocket gopher (*Thomomys talpoides*). A furtive, thick-set animal, approaching the size of the striped gopher, but much thicker proportionately. The cheek pouches are separate from the mouth opening and can contain a considerable quantity of food. The legs are short and thick, while the forefoot is developed into a long claw, especially adapted for digging. The tail is short and almost devoid of hair. This animal spends most of its time below the surface, only appearing to throw out the earth which it is constantly loosening as it continues its tunnelling. This work, the result of which is seen in the mounds of fine earth thrown up in the fields, is doubly destructive, in that it buries much of the grain too deep to permit of its growth and also undermines the roots of much of the growing seed in the vicinity. It is upon the roots of these grains and shrubs that he animal feeds. Occasionally it pulls down the heads of grain into the burrow, but as a rule it is content to feed upon the roots and underground growth. The species is especially destructive to young trees, and will destroy whole orchards and groves by cutting off the roots of the trees. They will also destroy large quantities of turnips, carrots, potatoes and other vegetables. As this animal is chiefly nocturnal, it would be more a prey to owls than hawks, and, as it seldom comes far above the surface, about the only species which can combat them is the agile burrowing owl, which seems to be extending its range into our country. Badgers and weasels persecute these gophers persistently, the badger digging the gopher out, while the largest weasel is able to enter the tunnels with ease, and this invariably results in a dead gopher. There are various methods adopted to kill off all these destructive animals at times, when their numbers increase abnormally. It can no longer be disputed that as an agency toward the perpetual limitation of their numbers, the hawks and owls, though long unjustly persecuted, are certainly deserving of our respect and protection. We can well spare an occasional young chicken or an old rheumatic fowl to these birds in return for the number of the pests they annually destroy.

House Flies.

Most of us have supposed that the common house fly which appears in such numbers in the summer time and disappears with cold weather is a pest which comes from no one knows where and of which there is no means of getting rid, but Entomologist Howard, of the Department, in a little pamphlet, shows that the house fly breeds in filth and manure, and that if there were no horse manure there would practically be no flies. The fly is an extremely dirty sort of an individual and is shown to be capable of transmitting diseases. Mr. Howard claims that if all horse manure, instead of being exposed to the air and thrown out in piles, should be transferred to a covered box or sink, as soon as made, the propagation of flies would be largely prevented. A single stable in which a horse is kept will supply flies for an extended neighborhood. The flies lay their eggs in immense numbers in fresh manure, as many as 200 having been found in less than a cubic inch of manure taken from a spot two inches below the surface of a pile. As it only takes about a third of a day for the eggs to hatch maggots and about ten days for the perfect fly to emerge, and as each fly lays probably about 120 eggs, it will be

seen at what rate flies can propagate under favorable conditions. The fly has its natural enemies, among which are the common house centipedes as well as various parasites, but the comparative number destroyed is so small as to make no appreciable difference in the general supply.

How to Iron Properly.

It is difficult to give minute definitions how to iron well, but general rules for this department of the laundry are laid down, and it is well for every housekeeper to understand them, says Eliza R. Parker in an American exchange.

To iron well, clothes must be properly starched. To make good starch, dissolve two tablespoonfuls of starch in a little cold water, mix smooth, pour over a pint of boiling water, stir over the fire for two or three minutes; add a teaspoonful of powdered borax, and a few drops of bluing. Use as hot as possible.

For ironing, a strong table should be provided, also an ironing and bosom board. Irons of three sizes—large, medium and small—should be used, and always kept clean and smooth.

Fine, soft articles that do not require polishing should be ironed on a sheet over a soft blanket. Embroideries should be ironed on the wrong side. When ironing, a pan of cold water should be kept on the table, so that articles requiring to be damped may be gone over with a rag dipped in the water. Laces and muslins should be pulled out carefully, ironed and pulled into shape; all edges or purings picked out with a darning needle and pressed carefully. As far as possible, all garments should be ironed by the thread, the material held straight and the iron moved in the same direction as the thread of the cloth. A willing hand, by following these directions, will after a brief time of practice become efficient at the work.

Cycling.

The maiden with her wheel of old,
Sat by the fire to spin,
While lightly through her careful hold
The flax slid out and in.
To-day, her distaff, rock, and reel,
Far out of sight are hurled,
For now the maiden with her wheel,
Goes spinning round the world.

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